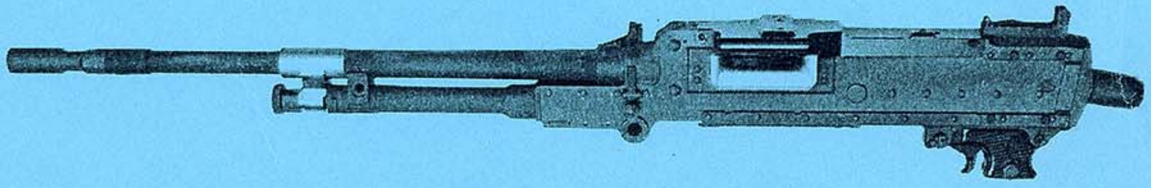
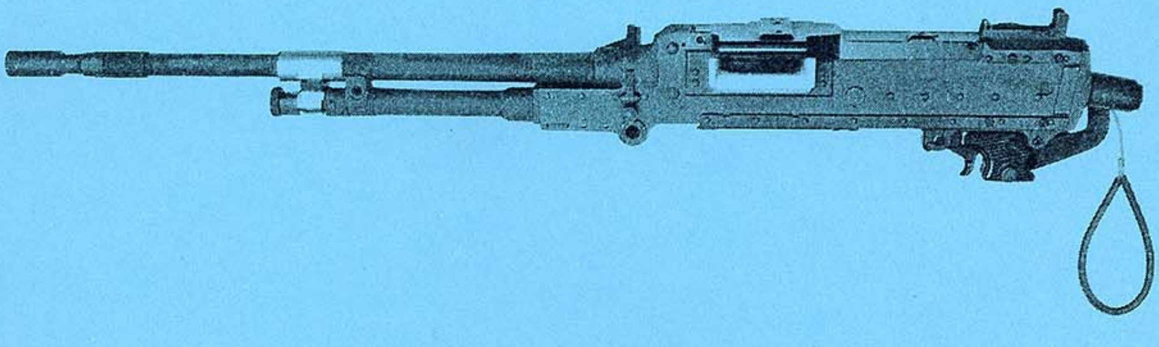
MAG™

L7A2 (310)/(360)

Coaxial Machine Gun

Calibre 7.62 x 51 mm





Maintenance manual

December 2001

Catalog n° 3600084050

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- Data in this manual is technical only and of no contractual value.

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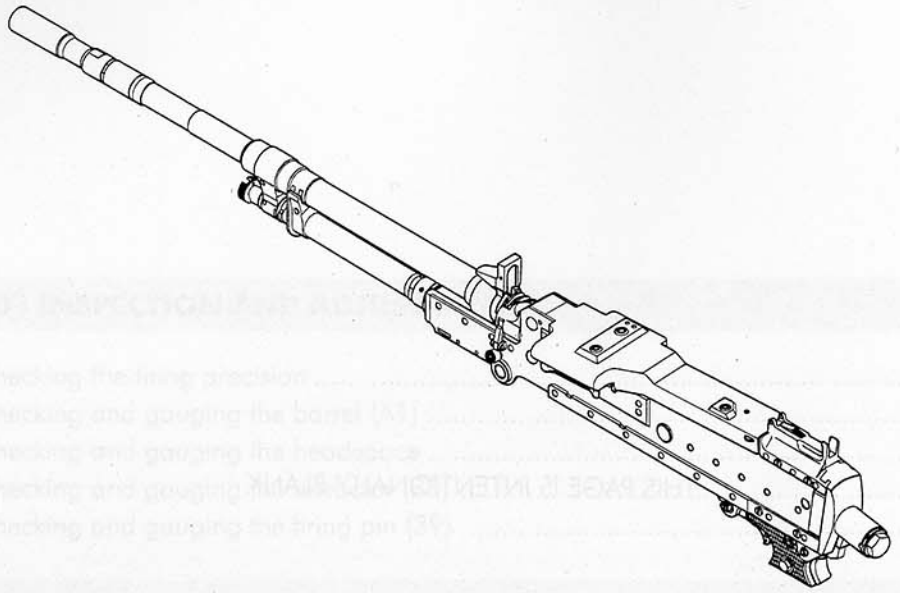
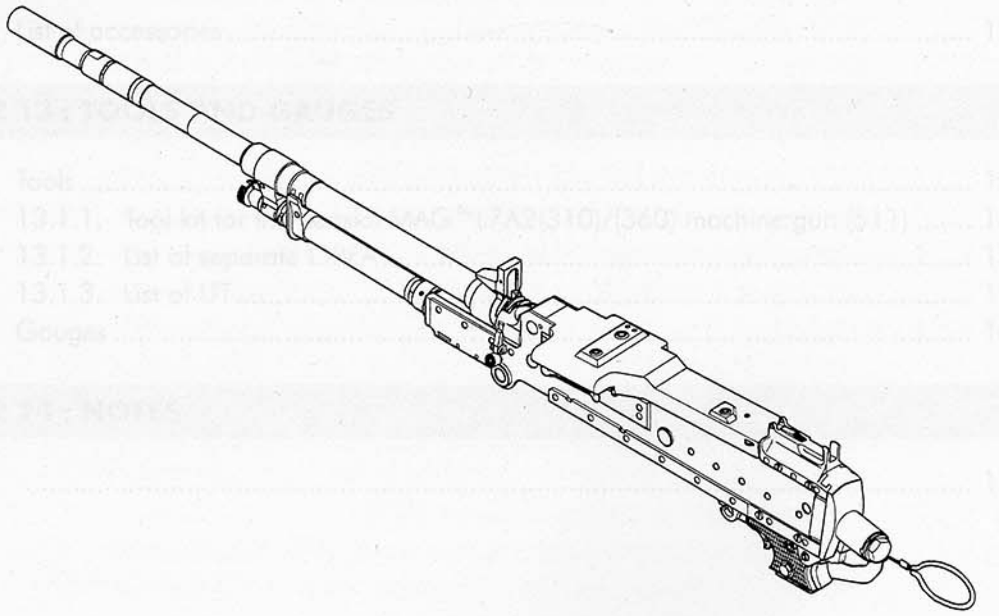


(a) MAG™L7A2(310)



(b) MAG™L7A2(360)

Fig. 1 - The coaxial MAG™L7A2(310) and MAG™L7A2(360) machine guns

CHAPTER 1 : GENERALITIES

1.1. INTRODUCTION

This manual is intended for the personnel responsible for the maintenance of the coaxial MAG™L7A2(310) and MAG™L7A2(360) machine guns.

The purpose of the manual is to familiarise the personnel with the operation and the maintenance of the gun, to explain the removal, disassembly, repair and/or replacement of the component parts and to supply the appropriate inspection, gauging and adjustment procedures.

1.2. DESCRIPTION

The coaxial MAG™L7A2(310) and MAG™L7A2(360) machine guns are gas-operated, full-automatic, multi-purpose weapons firing the 7.62 x 51 mm ammunition and provided with a gas regulator which allows setting the rate of fire between 750 and 950 rpm :

	MAG™L7A2(310)	MAG™L7A2(360)
Barrel	L7A2-type	L7A2-type
Receiver	L7A2-type	L7A2-type
Gas regulator	3 positions	3 positions
Ammunition feeding	Left-hand Disintegrating M13 links belt	Left-hand Disintegrating M13 links belt
Cocking system	Cable (*)	Cable
Trigger frame	Short without solenoid	Short without solenoid

(*) Cable provided in the weapon system into which the machine gun is incorporated.

Unless specified differently, all paragraphs of this CPA apply to both the coaxial MAG™L7A2(310) and MAG™L7A2(360) machine guns.

1.3. TECHNICAL DATA

1.3.1. Dimensions and weight

	MAG™L7A2(310)	MAG™L7A2(360)
Overall length	1085 mm *(42.7")*	
Width	113 mm *(4.5")*	
Height	165 mm *(6.5")*	
Weight (empty)	11.510 kg *(25.37 lb)*	11.510 kg *(25.37 lb)*

1.3.2. Functional data

Operating principle : Gas-operated
Calibre : 7.62 x 51 mm
Firing mode : Full-automatic
Barrel length : 630 mm (24.8")
Barrel weight : 2,83 kg (6.24 lb)
Rifled length : 488 mm (19.2")
Cyclic rate of fire : 750 - 950 rpm

1.3.3. Ballistics

Muzzle velocity : Ball SS77/1 : 834 m/s (2,740 fps)
Tracer L78 : 828 m/s (2,720 fps)
Blank : --

Maximum range : Ball SS77/1 : 4,130 m (13,500 ft)
Tracer L78 : 4,130 m (13,500 ft)
Blank : --

1.4. ACCESSORIES

	MAG™L7A2(310)	MAG™L7A2(360)
Deflector	OK	
Barrel carrying bag	Available in olive-green and sand-yellow	
First repair kit	OK	

OK : Available as accessory for this (these) MAG™ version(s)

1.5. ABBREVIATIONS

Fig. : Figure
fps : Feet per second
ft : Feet
kg : Kilograms
lb : Pounds
m : Metres
mm : Millimetres
m/s : Metres/second
OREA : "Outil de Réparation et d'Entretien Armes" (special tool for weapon repair and maintenance)
Qty : Quantity
rpm : Rounds per minute
s : Seconds
UT : Universal Tool (commercial tool not considered as a FN Herstal product, but which can be supplied on special request)
" : Inch

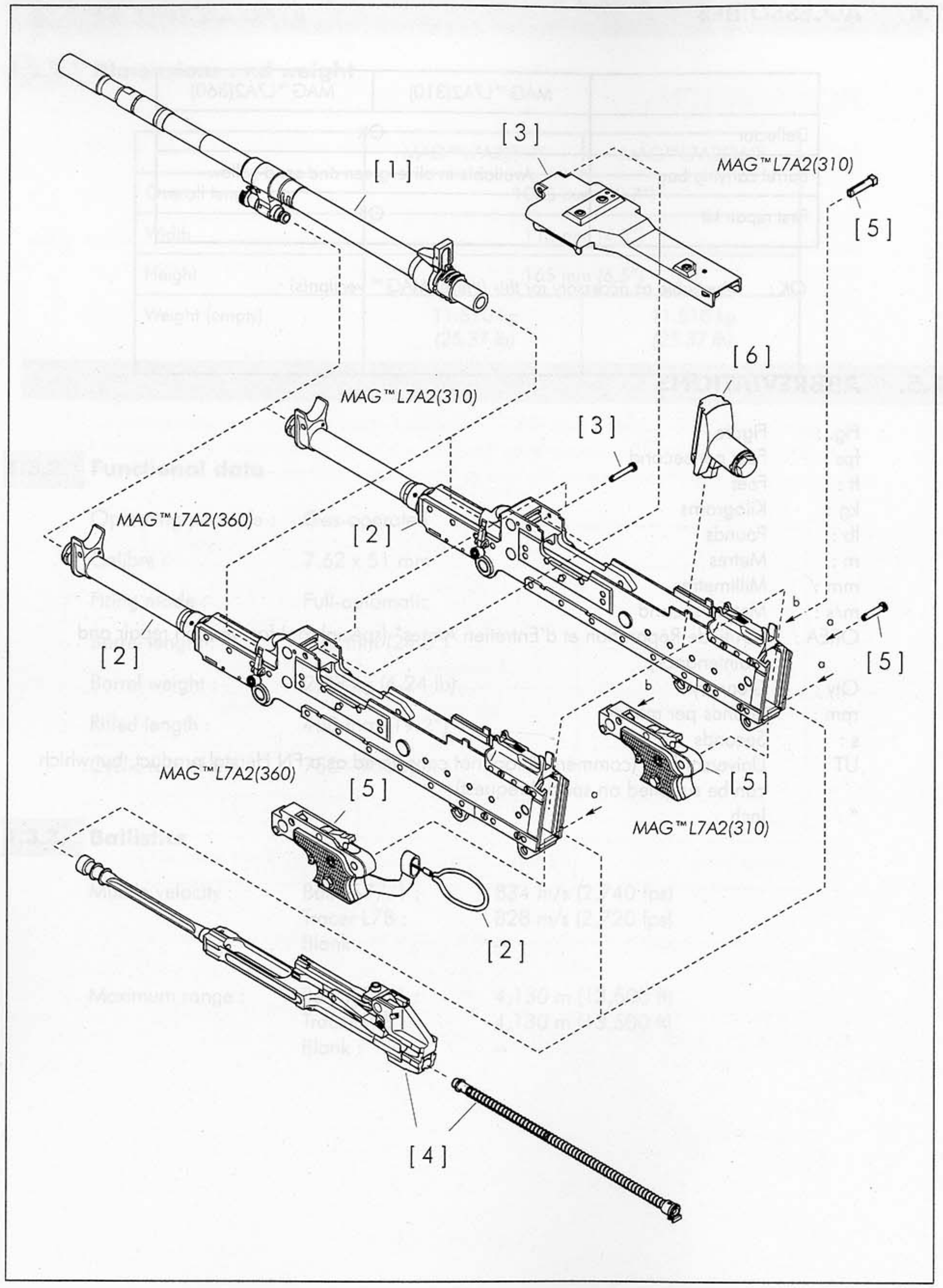


Fig. 2.a - The 6 main groups of the coaxial MAG™L7A2(310)/(360) machine gun

CHAPTER 2 : IDENTIFICATION OF THE PARTS

2.1. HOW TO ORDER PARTS

For ordering parts, refer to the 'Catalog of parts and accessories' of the coaxial MAG™L7A2(310)/(360) machine gun.

2.2. PARTS LISTS

The coaxial MAG™L7A2(310)/(360) machine gun is subdivided into 6 groups (Fig. 2.a) :

Group	Description	Fig.	Paragraph
[1]	Barrel group	2.b	2.2.1
[2]	Receiver group (part I) Receiver group (part II)	2.c.1 2.c.2	2.2.2.1 2.2.2.2
[3]	Ammunition feeding group	2.d	2.2.3
[4]	Moving parts group	2.e	2.2.4
[5]	Trigger group	2.f	2.2.5
[6]	Buffer and butt group	2.g	2.2.6

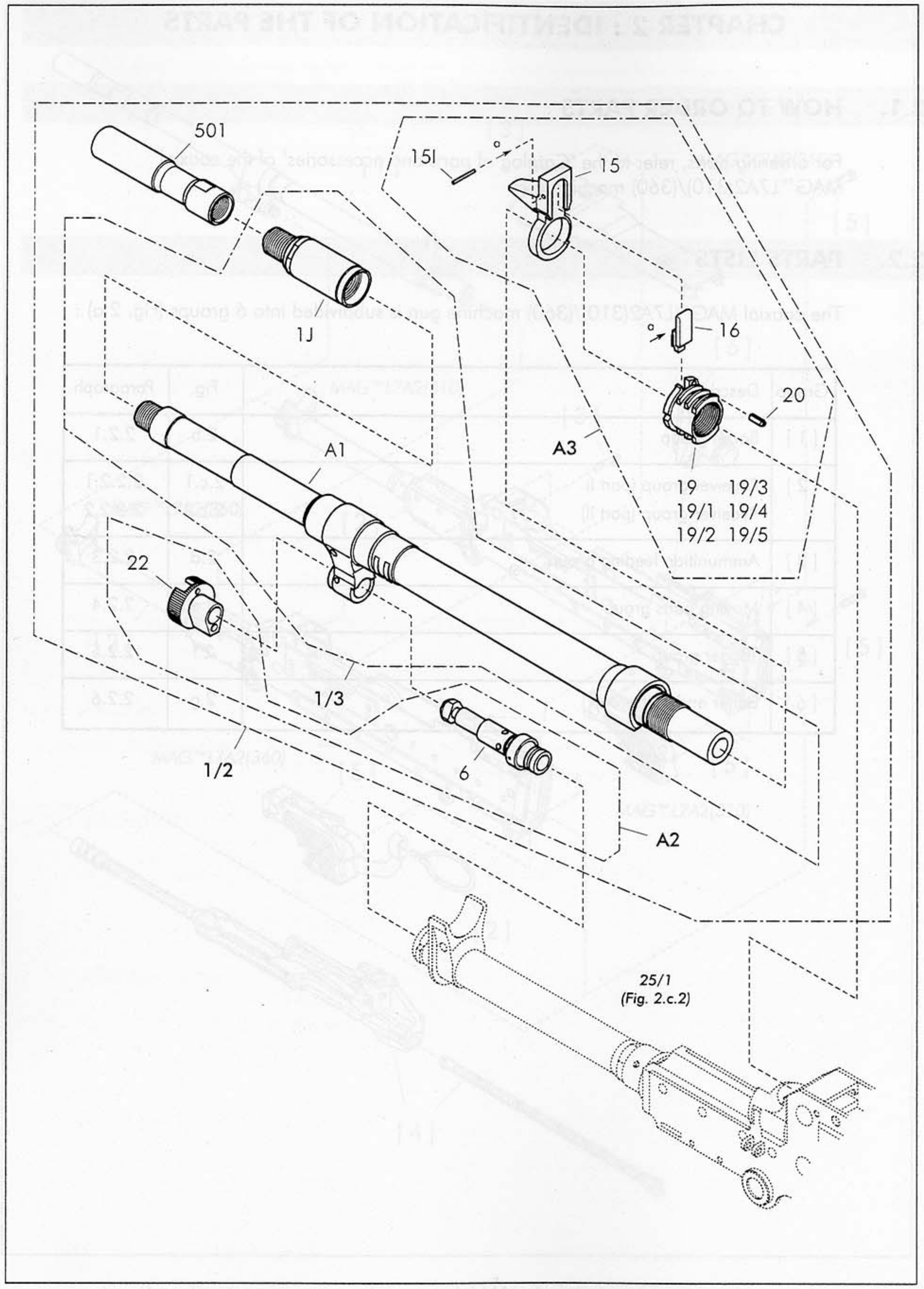


Fig. 2.b - Barrel group [1]

2.2. PARTS LISTS (continued)

2.2.1. Barrel group [1]

(a) List of parts (Fig. 2.b)

CAT n°	Description	Qty per unit
1/2	Barrel assembly	1
1/3	Barrel, coaxial type	1
1J	Extension, barrel	1
6	Plug, gas regulator	1
15	Bracket, barrel	1
15I	Pin	1
16	Catch, short	1
19	Nut, barrel	1
19/1	Nut, barrel spare parts	1
19/2	Nut, barrel spare parts	1
19/3	Nut, barrel spare parts	1
19/4	Nut, barrel spare parts	1
19/5	Nut, barrel spare parts	1
20	Pin, spring	1
22	Ring, securing regulator assembly	1
501	Flash-hider	1

The following parts or assemblies cannot be ordered (separately) : a number has however been attributed in order to facilitate the descriptions throughout this Maintenance Manual :

N°	Description	Qty per unit
A1	Barrel	1
A2	Gas regulator assembly	1
A3	Barrel locking assembly	1

(b) Description

The barrel group [1] (catalog number (1/2)) fits into position on top of the front part of the receiver group [2]. It consists of the extended barrel (1/3) onto which the following assemblies and components have been installed :

The extended barrel (1/3) itself consists of the barrel (A1) onto which the barrel extension (1J) has been screwed.

- The 3-position gas regulator assembly (A2) composed of the gas regulator plug (6) and the gas regulator assembly securing ring (22)

  The gas regulator assembly securing ring (22) fits onto the gas regulator plug (6) after the latter has been inserted, from the rear side, into the gas block provided underneath the barrel (A1).

  For more information about the operation of the gas regulator, refer to § 3.6.

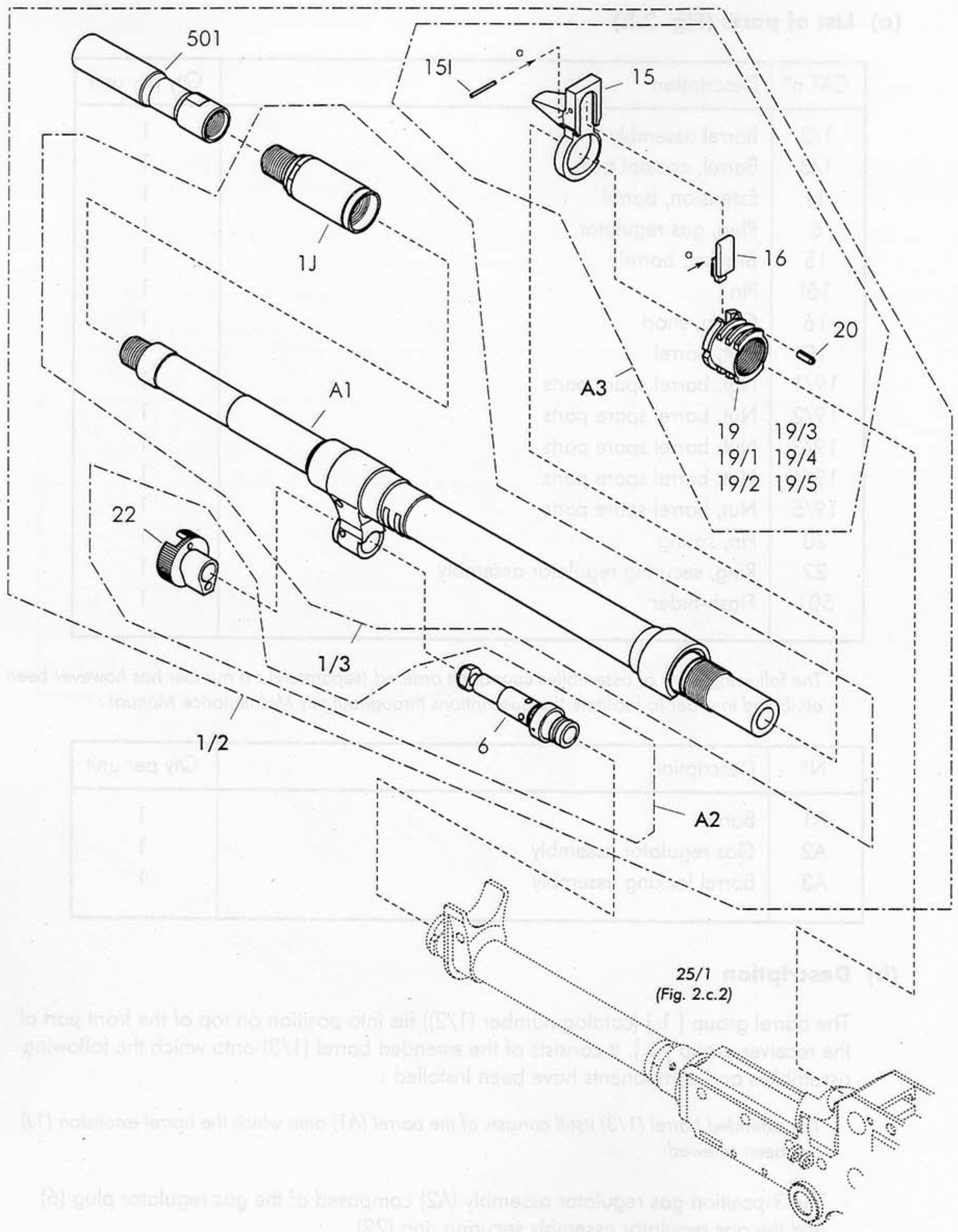


Fig. 2.b - Barrel group [1]

2.2. PARTS LISTS (continued)

2.2.1. Barrel group [1] (continued)

(b) Description (continued)

- The barrel locking assembly (A3), fitted onto the rear end of the barrel (A1) and consisting of the barrel bracket (15), the catch (16), the barrel nut (19) and the pins (15I) and (20)

After it has been fitted onto the rear end of the barrel (A1), the barrel bracket (15) is secured by the barrel nut (19) used in combination with the pin (20).

The barrel bracket (15) is then locked to the barrel nut (19) by using the catch (16) which has been provided in the housing of the barrel bracket, which engages the large notch in the front part of the barrel nut and which is held into position by means of the pin (15I).

The barrel locking assembly (A3) ensures that the barrel (A1) can correctly be locked into position onto the receiver (25/1).

In order to lock the barrel (A1) onto the receiver (25/1), the barrel bracket (15) should be turned from the vertical position as far as possible downwards towards the right side.

The locking operation itself is ensured by the engagement of the outer guides of the barrel nut (19) into the corresponding inner guides in the frame of the receiver (25/1).

The correct locking of the barrel (A1) onto the receiver (25/1) is indicated by a series of clicks generated when turning the barrel bracket (15).

If necessary, the locking of the barrel (A1) can be corrected by replacing the presently installed barrel nut (19) by a spare barrel nut.

For more information about checking and, if necessary, correcting the locking of the barrel (A1) onto the receiver (25/1), also refer to § 9.1.3.

- The flash-hider (501)

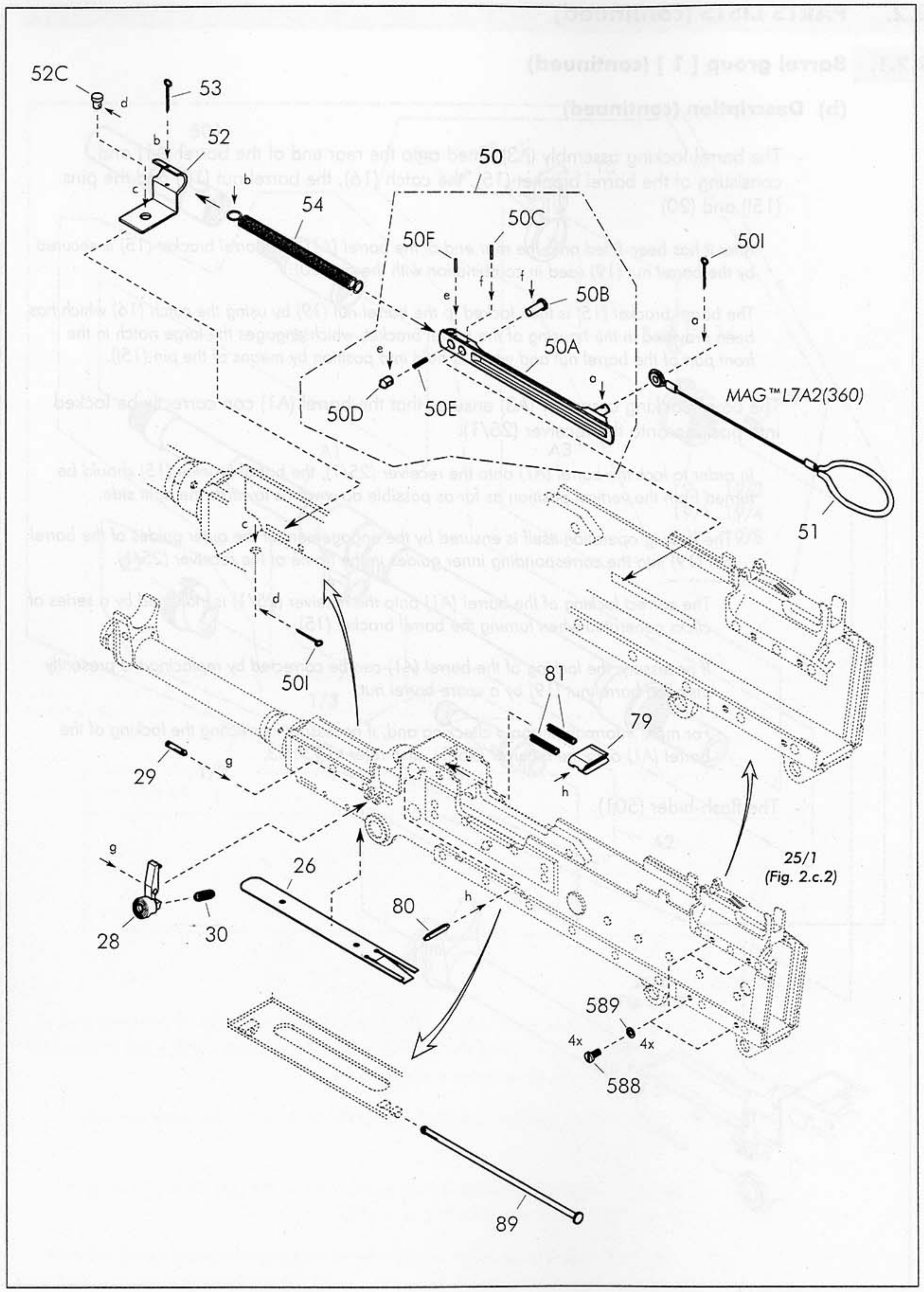


Fig. 2.c.1 - Receiver group [2] (part I)

2.2.2. Receiver group [2]

2.2.2.1. Receiver group [2] (part I)

(a) List of parts (Fig. 2.c.1)

CAT n°	Description	Qty per unit
26	Cover, dust, front	1
28	Catch, sleeve, barrel locking	1
29	Pin, barrel locking sleeve catch	1
30	Spring, barrel locking sleeve catch assembly	1
50	Handle, cocking assembly	1
50A	Body, slide, cocking handle and handle	1
50B	Pin, slide, cocking handle	1
50C	Pin, spring-tubular, slotted	1
50D	Plunger, retaining, slide	1
50E	Spring, compression	1
50F	Pin, straight headless	1
50I	Split pin	2
51	Cocking cable, assembly (*)	1
52	Plate, protective, cocking handle spring	1
52C	Lug	1
53	Split pin	1
54	Spring, cocking handle	1
79	Pawl, stop, cover	1
80	Pin, plunger, cover positioning	1
81	Spring, compression, pawl	2
89	Pin, hinge, ejection opening cover	1
588	Obturator, screw holes for bracket	4
589	Single coil square section spring washer	4

(*) *Only MAG™L7A2(360)*

(b) Description

The receiver group [2] consists of the receiver (25/1) onto or into which the following assemblies and components have been installed :

- The dust cover (26) which covers the lower front opening of the receiver (25/1)

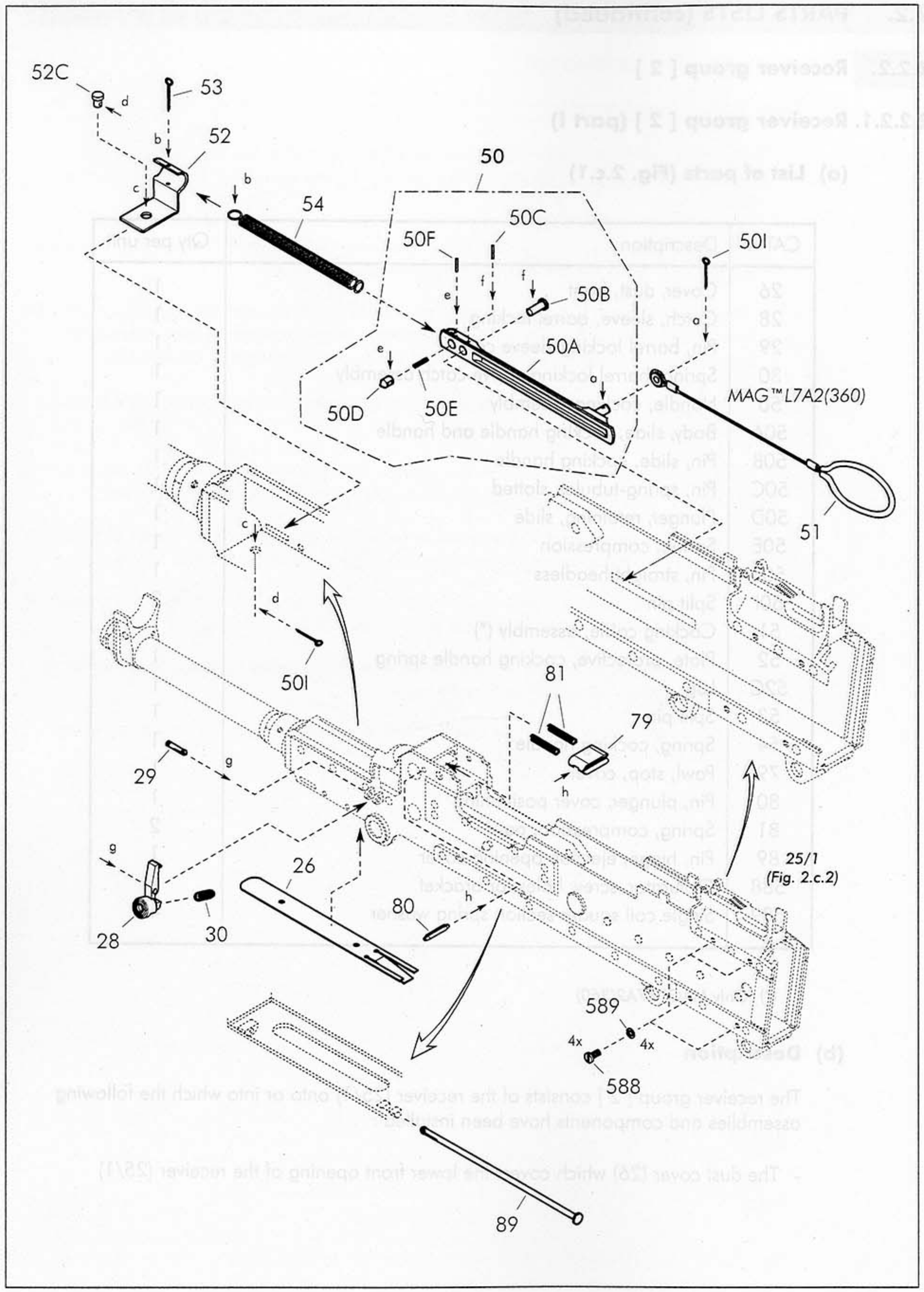


Fig. 2.c.1 - Receiver group [2] (part I)

2.2. PARTS LISTS (continued)

2.2.2. Receiver group [2] (continued)

2.2.2.1. Receiver group [2] (part I) (continued)

(b) Description (continued)

- The barrel locking catch (28), the pin (29) and the barrel locking catch spring (30)

The barrel locking catch (28) can pivot around the pin (29) and is held in a spring-tensioned position by its spring (30).

The upper tip of the barrel locking catch (28) has been designed to engage, through an opening in the left side of the receiver (25/1), into the small notches provided in the front flange of the barrel nut (19).

Besides holding back the rotational movement of the barrel nut (19) in order to avoid a progressive unscrewing and releasing of the barrel (A1), the barrel locking catch (28) also generates the number of clicks which are used to determine if the barrel locks correctly onto the receiver (25/1).

- The cocking handle assembly (50) used in combination with its spring (54)

The cocking handle assembly (50) consists of the cocking handle body (50A) provided with the cocking pin (50B) and the cocking handle retaining plunger (50D).

When the cocking handle assembly (50) is pulled completely rearwards along its guide rails provided at the right side of the receiver (25/1), it will move the moving parts assembly (31) completely rearwards so that the machine gun is cocked.

In case of the MAG™L7A2(310), the cocking handle assembly (50) is pulled rearwards by using a cocking cable provided in the weapon system into which the machine gun is incorporated.

In case of the MAG™L7A2(360), the cocking handle assembly (50) is pulled rearwards by means of the cocking cable (51) (which also passes through the opening of its support (98) (also refer to § 2.2.5)).

In both cases, the front end of the cocking cable is secured to the rear pin of the cocking handle body (50A) by means of a split pin (50I).

The movement of the cocking handle assembly (50) is transmitted to the moving parts assembly (31) by the cocking pin (50B) (secured into the cocking handle body (50A) by the pin (50C)) which engages the right side of the piston assembly (31/1).

The cocking handle retaining plunger (50D) is secured into the cocking handle body (50A) by means of the pin (50F) and held in a spring-tensioned position by its spring (50E). When the cocking handle assembly (50) is at its most forward position, the plunger engages the recess in the right side of the receiver (25/1) so that the cocking handle assembly is held in place.

When the rearward force onto the cocking handle assembly (50) is released, it will return towards its forward position by the force of its spring (45).

The rear extremity of the cocking handle spring (54) engages the front hole of the cocking handle assembly (50) while the front extremity is secured to the protective plate (52) by means of the split pin (53).

The protective plate (52) itself fits into the corresponding groove in the lower right part of the receiver (25/1) (just behind the gas cylinder (25BA)) and is held in place by means of the lug (52C) used in combination with a split pin (50I).

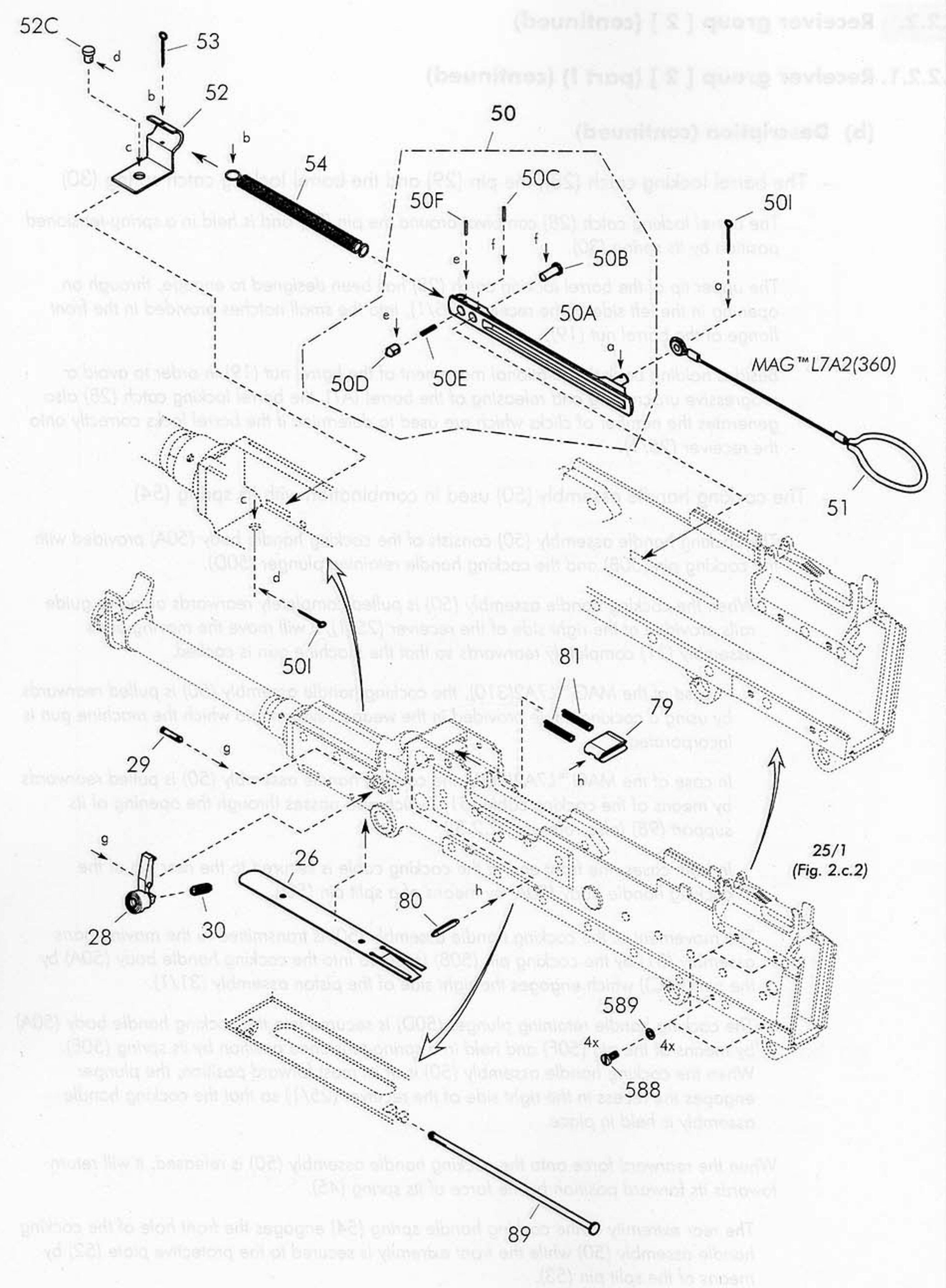


Fig. 2.c.1 - Receiver group [2] (part I)

2.2. PARTS LISTS (continued)

2.2.2. Receiver group [2] (continued)

2.2.2.1. Receiver group [2] (part I) (continued)

(b) Description (continued)

- The cover stop pawl (79), the pin (80) and the cover stop pawl springs (81)

  The cover stop pawl (79), secured by the pin (80) and held in a spring-tensioned position by its springs (81), ensures that the feed cover assembly (55) is correctly held in its closed and opened positions.

- The ejection cover hinge pin (89) which has just been provided in order to avoid deformation of the corresponding mounting supports on the bottom of the receiver (25/1) but which does not have any further function.

- The 4 screws (588) and the 4 washers (589) which are used to cover and protect the holes provided in the left side of the receiver (25/1) for the support (591) of the optional infra-red pointer

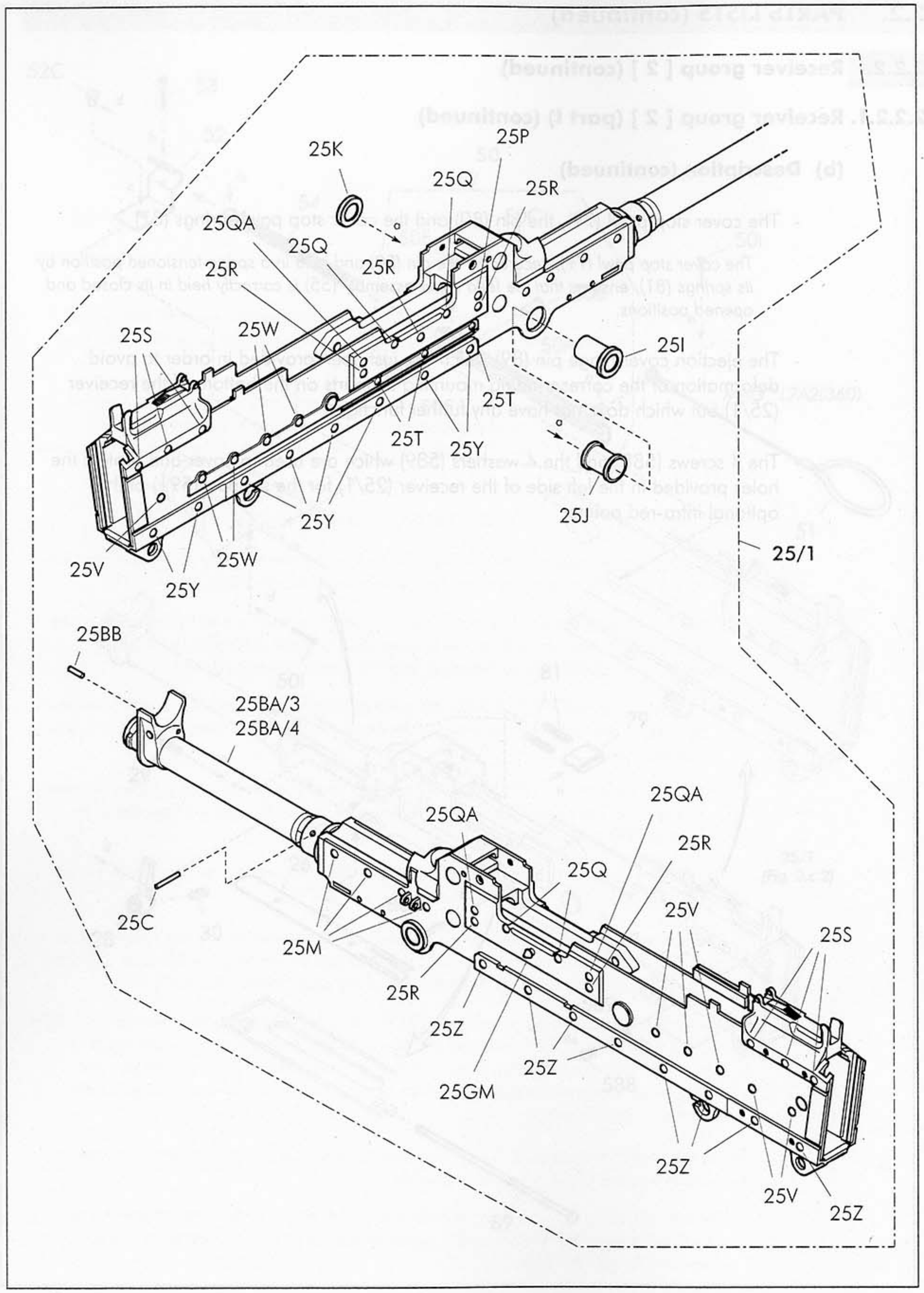


Fig. 2.c.2 - Receiver group [2] (part II)

2.2. PARTS LISTS (continued)

2.2.2. Receiver group [2] (continued)

2.2.2.2. Receiver group [2] (part II)

(a) List of parts (Fig. 2.c.2)

CAT n°	Description	Qty per unit
25/1	Receiver, assembly	1
25BA/3	Cylinder, gas 1	1 (°)
25BA/4	Cylinder, gas 2	1 (°)
25BB	Pin, spring-tubular, coiled, heavy duty	1
25C	Pin, straight, headless	1 (°)
25GM	Knob	1 (°)
25I	Bush, mounting front	1 (°)
25J	Collar, mounting front	1 (°)
25K	Ring, front mounting bush	1 (°)
25M	Rivet	4 (°)
25P	Rivet, long, front guide	1 (°)
25Q	Rivet, medium, front guide	4 (°)
25QA	Rivet, medium, front guide	3 (°)
25R	Rivet	5 (°)
25S	Rivet, short, bottom plate	6 (°)
25T	Rivet	3 (°)
25V	Rivet, locking shoulder	6 (°)
25W	Rivet	4 (°)
25Y	Rivet, long, bottom plate	8 (°)
25Z	Rivet, short, bottom plate	8 (°)

(°) *Although these components are available as spare parts, they are not discussed in the present Maintenance Manual : more information about their removal and/or replacement and the required tools is only available on **special request**.*

(b) Description

The receiver (25/1) is composed of various steel components which are riveted together.

The only separate part discussed in this Maintenance Manual is the pin (25BB) which is used to fill the hole in the barrel support at the front side of the gas cylinder (25BA) but which does not have any further function.

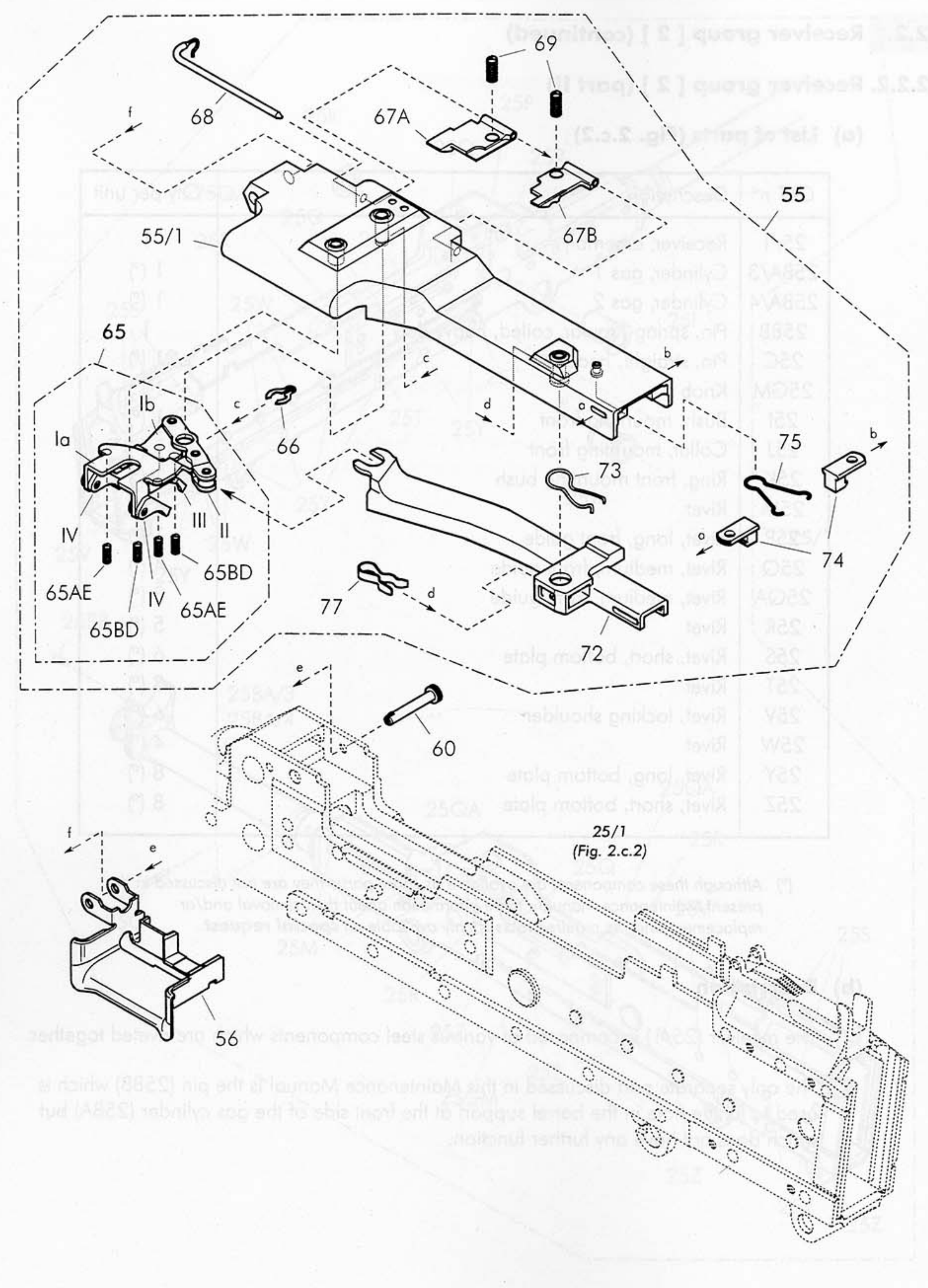


Fig. 2.d - Ammunition feeding group [3]

2.2. PARTS LISTS (continued)

2.2.3. Ammunition feeding group [3]

(a) List of parts (Fig. 2.d)

CAT n°	Description	Qty per unit
55	Feed cover and pawl assembly	1
55/1	Feed cover	1
56	Tray, feed, assembly	1
60	Pin, feed cover, long	1
65	Pawl assembly	1
65AE	Spring, compression	2
65BD	Spring, compression	2
66	Circlip, feed pawl	1
67A	Pawl, retaining cartridge, front	1
67B	Pawl, retaining cartridge, rear	1
68	Pin, cartridge retaining pawl	1
69	Spring, tension, cartridge pawl	2
72	Channel, feed	1
73	Clip, retaining, feed channel	1
74	Catch, cover	2
75	Clip, retaining, cover catch	1
77	Clip, securing, feed channel	1

(b) Description

The ammunition feeding group [3] is used to feed the ammunition belt, from the left side, into the receiver (25/1) and to eject the used links out of the right side of the receiver.

Please note that, after the firing operation, the empty cases leave the machine gun through the ejection opening in the bottom of the receiver (25/1).

The ammunition feeding group [3] consists of the feed cover assembly (55) and the feed tray (56), both secured to the receiver (25/1) by means of the feed cover pin (60).

The feed cover assembly (55) consists of the feed cover (55/1) into which the following assemblies and components have been provided :

- The 2 feed cover catches (74) which ensure that the feed cover assembly (55) remains correctly locked into position when it is closed and which can be used to unlock the feed cover assembly when it is necessary to open it.

  The 2 feed cover catches (74) fit, from the inside, into the rear notches of the feed cover (55/1) and are held in a spring-tensioned position by means of their clip (75). They have been provided with a lower claw designed to engage the corresponding recess at the inner side of the frame of the receiver (25/1) when the feed cover assembly (55) is closed.

  The 2 rear extremities of the feed cover catch clip (75) engage the inner recesses of the feed cover catches (74) while the central coil of the clip fits onto the small rear mounting pin of the feed cover (55/1).

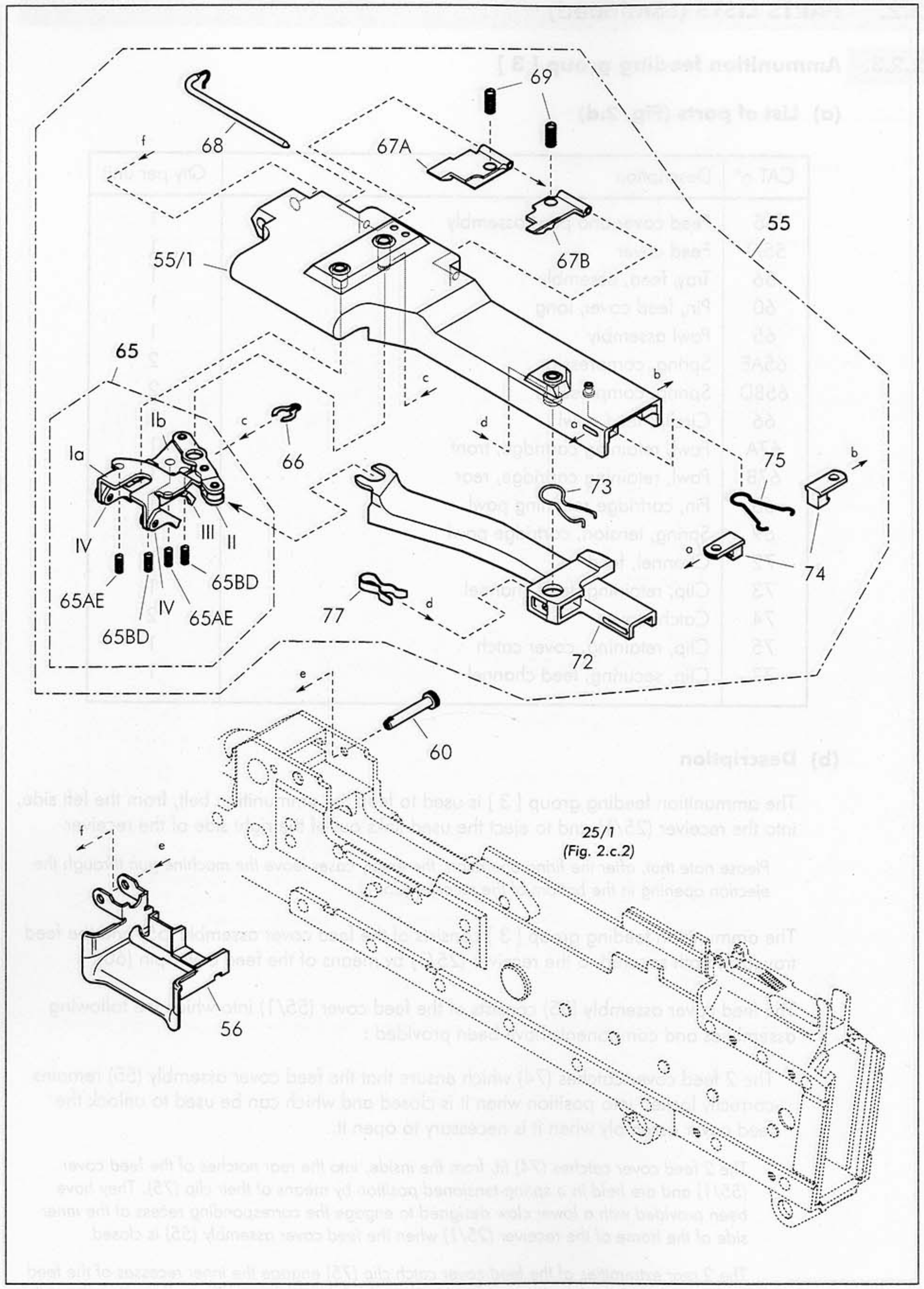


Fig. 2.d - Ammunition feeding group [3]

2.2. PARTS LISTS (continued)

2.2.3. Ammunition feeding group [3] (continued)

(b) Description (continued)

- The feed pawls assembly (65) which ensures that the ammunition belt is correctly pulled into the machine gun and which fits onto the 2 front mounting pins of the feed cover (55/1)

  The feed pawls assembly (65) consists of the upper and lower feed slides (Ia) and (Ib), held together by the feed link (II).

  The feed link (II), which is actuated by the front end of the feed channel (72), can pivot on the right front mounting pin of the feed cover (55/1) and is fixed to the mounting pin by means of the circlip (66).

  The upper feed slide (Ia) (with the 2 outer pawls (IV)) and the lower feed slide (Ib) (with the inner pawl (III)) are actuated by the feed link (II) and can slide along the left front mounting pin of the feed cover (55/1).

  The inner pawl (III) is held in a spring-tensioned position by means of the 2 inner pawl springs (65BD) which have a length of 19.2 mm.

  Each outer pawl (IV) is held in a spring-tensioned position by means of an outer pawl spring (65AE) which has a length of 22.5 mm.

  For more information about the operation of the feed pawls assembly (65), refer to § 3.5.

- The front and rear retaining pawls (67A) and (67B) which ensure that the cartridge is positioned correctly before being fed towards the chamber.

  The front and rear retaining pawls (67A) and (67B) are secured by their pin (68) and each pawl is held in a spring-tensioned position by means of a spring (69).

  For more information about the operation of the front and rear retaining pawls (67A) and (67B), refer to § 3.5.

- The feed channel (72) which converts the linear movement of the feed channel roller (32B) (also refer to § 2.2.4) into a pivoting movement of the feed link (II) of the feed pawls assembly (65)

  The feed channel (72) can pivot on the large rear mounting pin of the feed cover (55/1) and is fixed to the mounting pin by means of the securing clip (77).

  The front end of the feed channel (72) fits onto the rear end of the pivoting feed link (II) of the feed pawls assembly (65).

  The feed channel (72) is held in a spring-tensioned position by means of its retaining clip (73).

  For more information about the operation of the feed channel (72), refer to § 3.5.

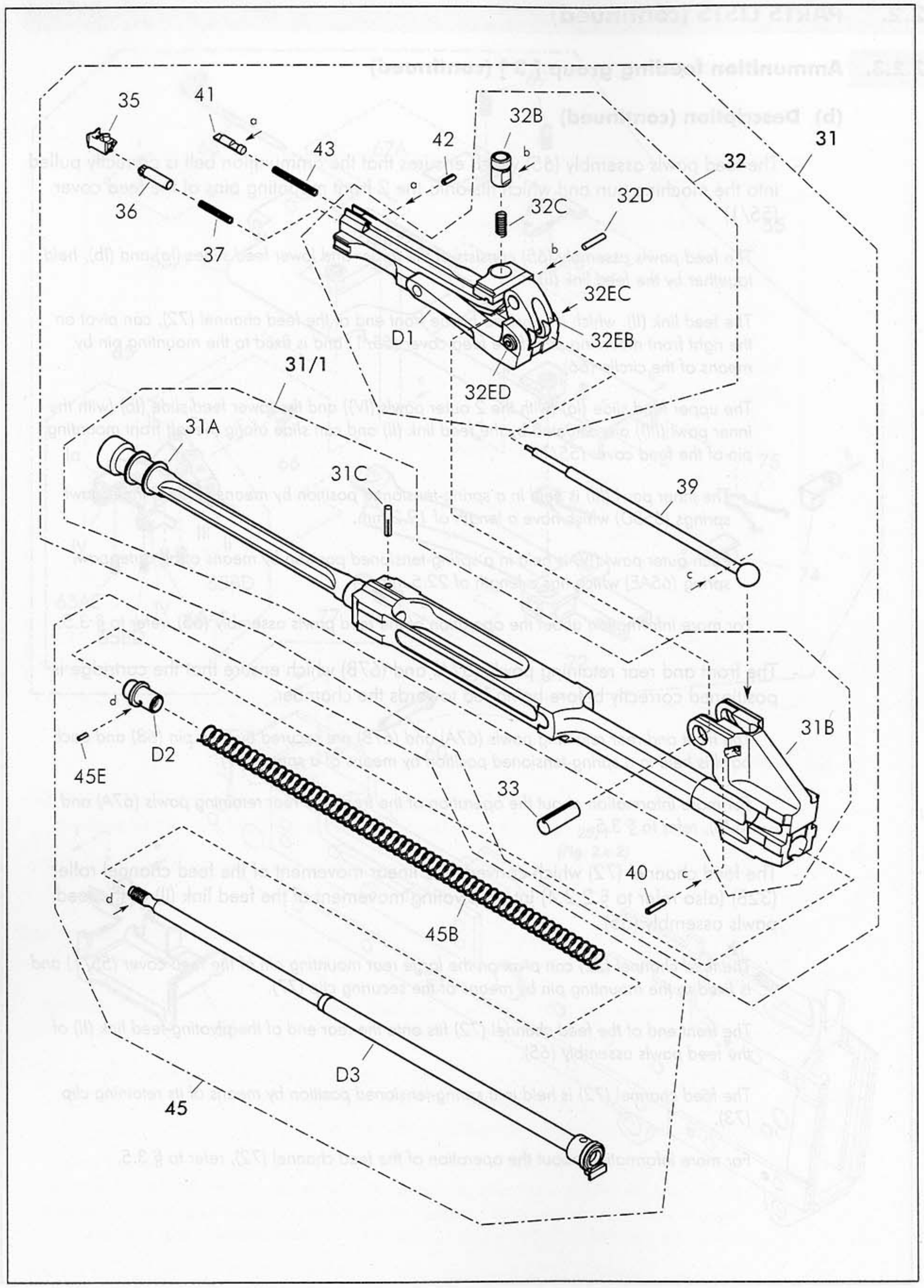


Fig. 2.e - Moving parts group [4]

2.2. PARTS LISTS (continued)

2.2.4. Moving parts group [4]

(a) List of parts (Fig. 2.e)

CAT n°	Description	Qty per unit
31	Moving parts assembly	1
31/1	Piston assembly	1
31A	Piston	1
31B	Slide	1
31C	Pin, straight headless	1
32	Breech block assembly	1
32B	Roller, feed channel assembly	1
32C	Spring, compression	1
32D	Spring pin, slotted, heavy type	1
32EB	Link, piston extension	1 (°)
32EC	Link pin, half-axis	1 (°)
32ED	Link pin, hollow half-axis	1 (°)
33	Pin, securing, link	1
35	Extractor	1
36	Plunger, extractor	1
37	Spring, extractor assembly	1
39	Pin, firing	1
40	Pin, spring	1
41	Ejector	1
42	Pin, spring	1
43	Spring, ejector	1
45	Return spring assembly	1
45B	Spring, return	1
45E	Spring pin, slotted, heavy type	1

(°) Although these components are available as spare parts, they are not discussed in the present Maintenance Manual : more information about their removal and/or replacement and the required tools is only available on ***special request****.*

The following parts or assemblies cannot be ordered (separately) : a number has however been attributed in order to facilitate the descriptions throughout this Maintenance Manual :

N°	Description	Qty per unit
D1	Breech block body	1
D2	Return spring sleeve	1
D3	Return spring stem	1

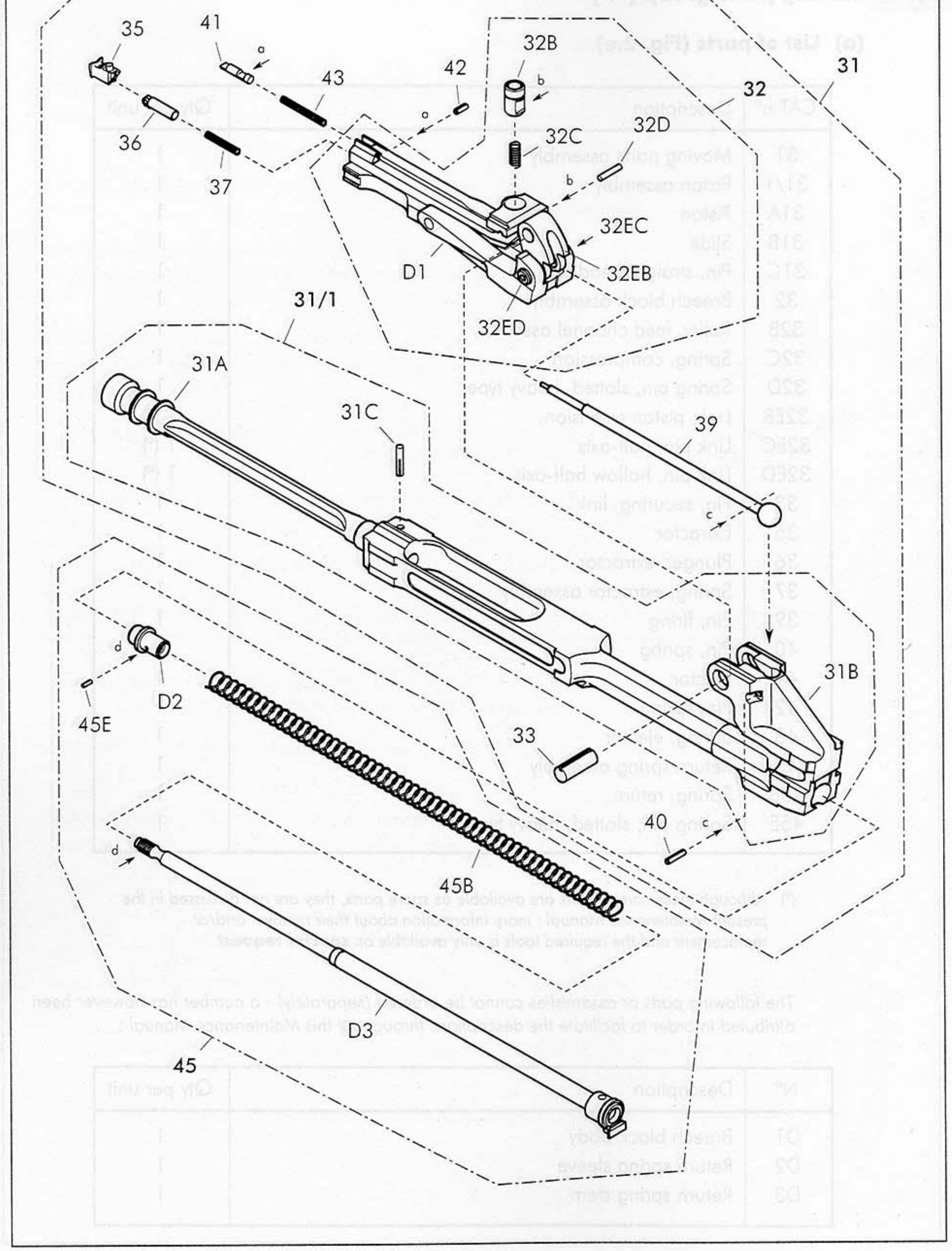


Fig. 2.e - Moving parts group [4]

2.2. PARTS LISTS (continued)

2.2.4. Moving parts group [4] (continued)

(b) Description

The moving parts group [4] is used in combination with the gas regulator assembly (A2) to convert the energy of (a part of) the gas generated when firing a round into the kinetic energy necessary for the operation of the machine gun.

When a round is fired, the resulting energy of the gas passing through the gas regulator assembly (A2) causes the piston assembly (31/1), and therefore the whole moving parts assembly (31), to move rearwards, against the force of the return spring assembly (45).

Once the moving parts assembly (31) has reached its most rearward position and as long as it is not held back by the sear (101), it will be moved back forwards under the force of the return spring assembly (45).

For more information about the operation of the moving parts group [4], refer to § 3.4.

The moving parts group [4] consists of the moving parts assembly (31) and the return spring assembly (45).

The return spring assembly (45) is composed of the return spring stem (D3) onto which the return spring (45B) has been fitted.

The return spring (45B) is held in place by the return spring sleeve (D2) which has been screwed onto the threaded front end of the return spring stem (D3) and which is secured by means of the pin (45E).

The moving parts assembly (31) consists of the following components :

- The breech block assembly (32) and the piston assembly (31/1), held together by means of the pin (33).

  The breech block assembly (32) is composed of the breech block body (D1) provided, at its upper side, with the feed channel roller (32B), its spring (32C) and the pin (32D).

  The feed channel roller (32B) is secured by the pin (32D), held in a spring-tensioned position by means of its spring (32C) and fits, from underneath, into the feed channel (72) of the ammunition feeding group [3] (also refer to § 2.2.3).

  The feed channel roller (32B) is used to transmit the linear back and forth movement of the moving parts assembly (31) to the feed channel (72) which converts it into a pivoting movement of the feed link (II) of the feed pawls assembly (65).

  The piston assembly (31/1) consists of the piston (31A) and the slide (31B), screwed into each other and then secured by means of the pin (31C).

- The extractor (35) which has been provided in the front part of the breech block body (D1) and which is held in place by its plunger (36) and its spring (37)

  The extractor (35), which lightly protrudes from the front face of the breech block body (D1), is held in a spring-tensioned position by its spring (37).

  When, during the feeding operation, the front face of the breech block body (D1) pushes the cartridge into the chamber, the rim of the cartridge clicks itself into the extractor (35) (also refer to § 3.4).

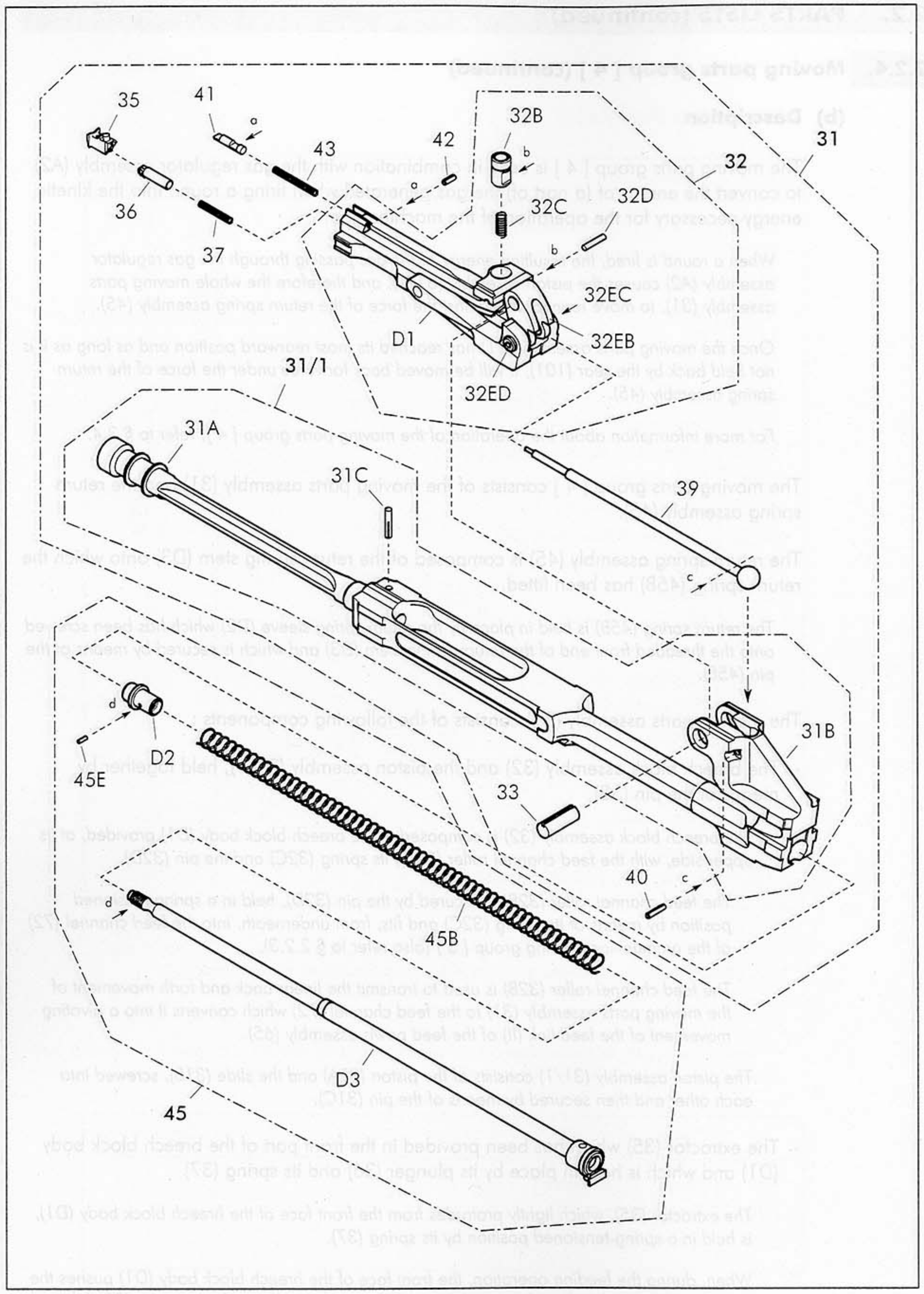


Fig. 2.e - Moving parts group [4]

2.2. PARTS LISTS (continued)

2.2.4. Moving parts group [4] (continued)

(b) Description (continued)

- The ejector (41) and its spring (43) which have also been provided in the front part of the breech block body (D1) and which are held in place by the pin (42)

  The ejector (41), which lightly protrudes from the front face of the breech block body (D1), is held in a spring-tensioned position by means of its spring (43).

  When, during the feeding operation, the front face of the breech block body (D1) pushes the cartridge into the chamber, the ejector (41) is completely pushed into the breech block body (D1). After the firing operation, when the moving parts assembly (31) starts its rearward movement, pressure will be exerted by the ejector (41) on the top rear part of the cartridge case, causing the case to pivot around the extractor (35) : the case will disengage from the extractor (35) and leave the weapon through the ejection opening.

- The firing pin (39) which is fixed, by its rear side and by means of the pin (40), into a special housing provided at the upper rear side of the slide (31B)

  The firing pin (39) fits, from the rear side, into the breech block body (D1).

  When, during the firing operation, the moving parts assembly (31) is just about to reach its most forward position, the firing pin (39) protrudes from the front face of the breech block body (D1) and hits the primer of the cartridge so that firing takes place.

  For more information about the operation of the firing pin (39), refer to § 3.4.

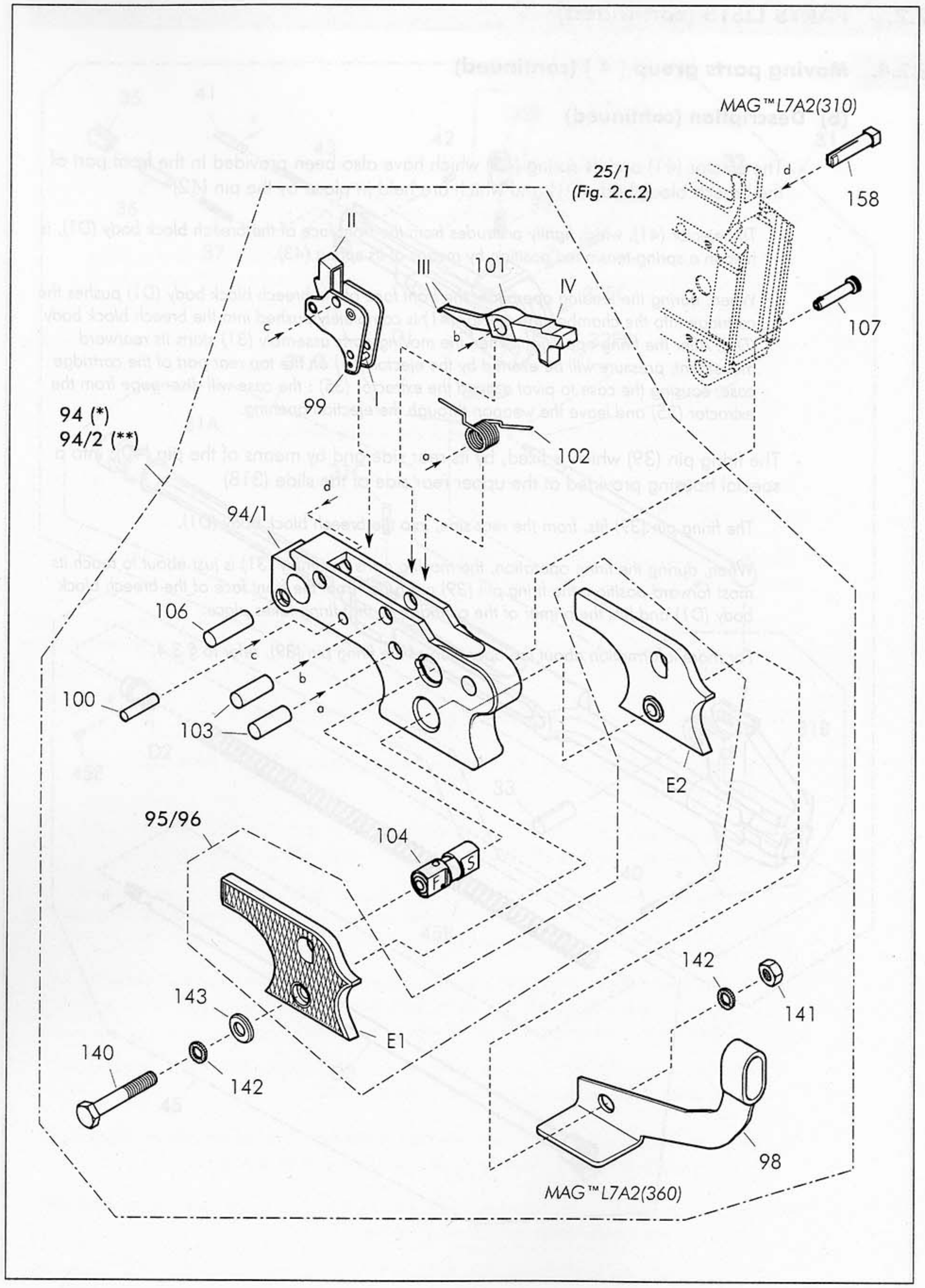


Fig. 2.f - Trigger group [5]

2.2. PARTS LISTS (continued)

2.2.5. Trigger group [5]

(a) List of parts (Fig. 2.f)

CAT n°	Description	Qty per unit
94	Trigger frame assembly (*)	1
94/1	Body, trigger frame, short type	1
94/2	Trigger frame assembly (**)	1
95/96	Pair of grip plates, butt	1
98	Support for cocking cable (*)	1
99	Trigger assembly, short	1
100	Pin, straight headless	1
101	Sear	1
102	Spring, sear	1
103	Pin, straight headless	2
104	Catch, safety assembly	1
106	Rivet pin	1
107	Pin, trigger mechanism	1
140	Screw	1
141	Nut	1
142	Safety washer scored	2
143	Washer	1
158	Pin, rear (**)	1

(*) Only MAG™L7A2(360)
(**) Only MAG™L7A2(310)

The following parts or assemblies cannot be ordered (separately) : a number has however been attributed in order to facilitate the descriptions throughout this Maintenance Manual :

N°	Description	Qty per unit
E1	Left grip plate	1
E2	Right grip plate	1

(b) Description

The trigger group [5] controls the firing operation of the weapon and is composed of the trigger frame assembly ((94) / (94/2)) which fits, from underneath, into the bottom of the receiver (25/1) and which is held in place by means of the securing pin (107).

In case of the MAG™L7A2(310), an additional securing pin (158) has been provided.

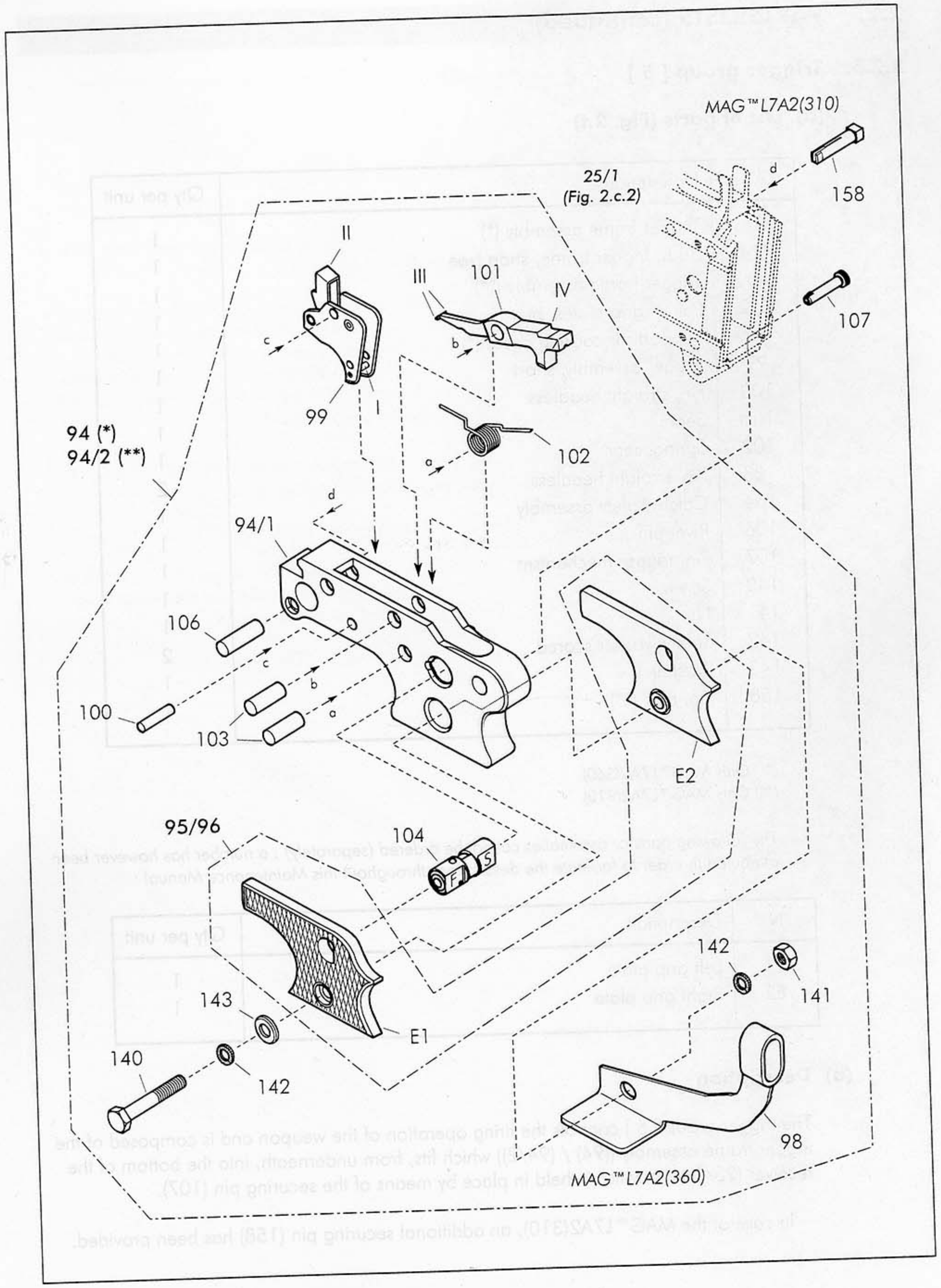


Fig. 2.f - Trigger group [5]

2.2. PARTS LISTS (continued)

2.2.5. Trigger group [5] (continued)

(b) Description (continued)

The trigger frame assembly ((94) / (94/2)) consists of the trigger frame body (94/1) onto or into which the following components have been installed :

- The 2 grip plates (95/96) fixed by means of the screw (140), the 2 scored washers (142), the washer (143) and the nut (141)

  In case of the MAG™L7A2(360), a cocking cable support (98) has been provided at the right side of the right grip plate (E2).

  The cocking cable support (98), provided with an opening for the passage of the cocking cable (51) (also refer to § 2.2.2.1), is fixed together with the 2 grip plates (95/96).

- The trigger (99) which is secured by and can pivot around the pin (100)

  When the trigger (99) is pulled, it actuates the sear (101) on the condition that the latter is not blocked by the safety catch (104).

  The actuation of the sear (101) occurs by the tripping lever (II) of the trigger (99) which has been provided to protect the sear against the shock caused by the movement of the piston assembly (31/1).

  The action of the tripping lever (II) of the trigger (99) on the sear (101) also ensures that the safety catch (104) cannot be set at the position 'S' when the machine gun is not cocked.

  In order to ensure that the trigger (99) returns to its forward position when it is released, the small transversal pin (I) provided in the lower part of the body of the trigger is subjected to the force of the front extremity of the sear spring (102).

  For more information about the operation of the trigger (99), refer to § 3.4.

- The sear (101) which is secured by and can pivot around one of the pins (103)

  The sear (101) is held in a spring-tensioned position by the upper extremity of its spring (102) which is secured by the other pin (103).

  When the trigger (99) is pulled after the machine gun has been cocked, and on the condition that the sear (101) is not blocked by the safety catch (104), the front end of the sear is raised so that its rear end releases the notch provided in the bottom of the piston assembly (31/1).

  The front part of the sear (101) is passed through the tripping lever (II) at the upper side of the trigger (99) and caught into position by means of the 2 small protrusions (III) provided on its front end.

  The sear (101) has been provided with a second bent (IV), located approx. 15 mm before its rear end, in order to avoid any 'runaway' problem (also refer to the end of § 3.4.2).

  For more information about the operation of the sear (101) and its spring (102), refer to § 3.4.

- The safety catch (104), which can be set at 2 positions ('S' and 'F') and which determines the basic operation of the MAG™ machine gun

  For more information about the operation of the safety catch (104), refer to § 3.1 and § 3.4.

- The pin (106) which does not have any further function

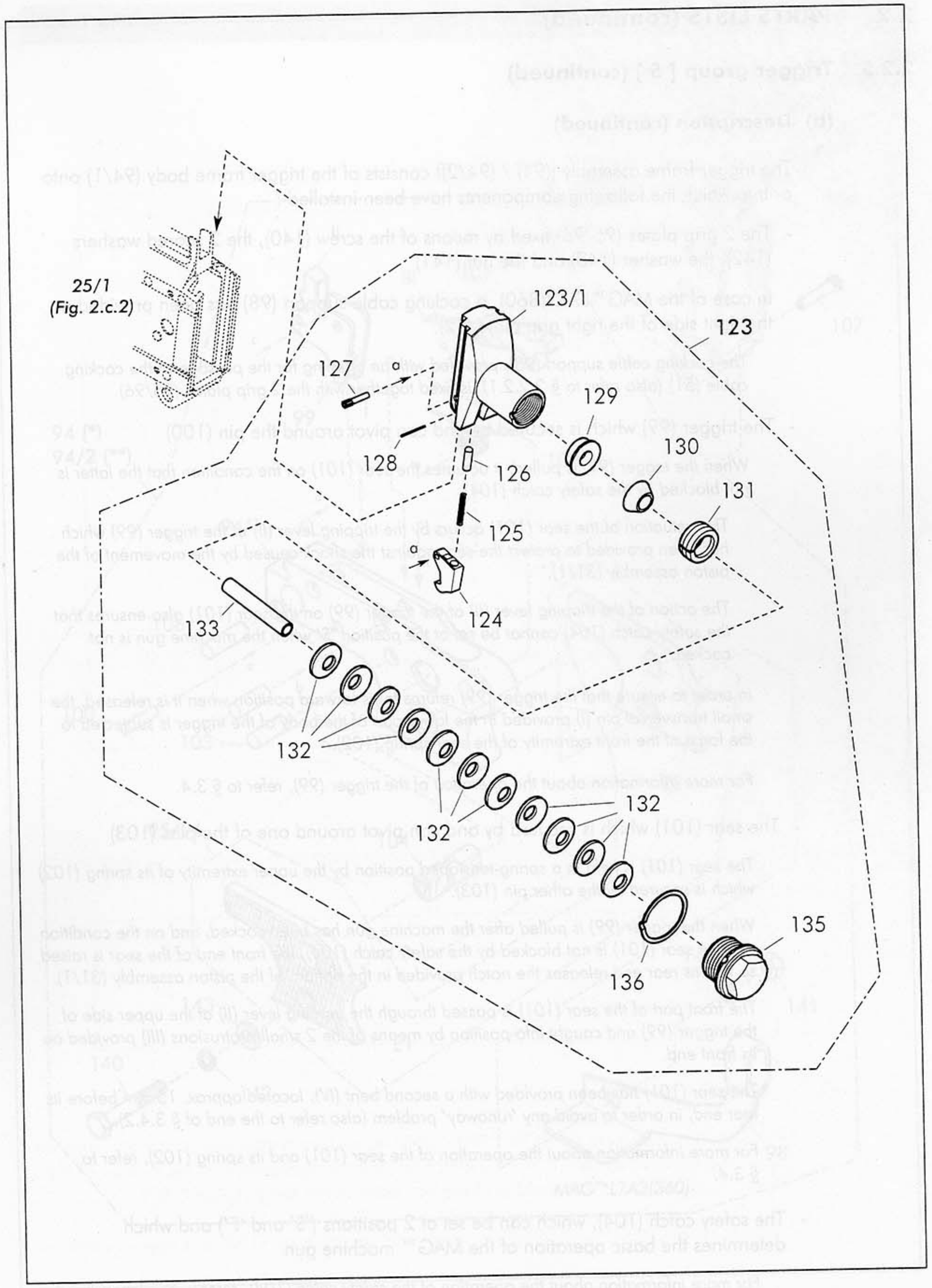


Fig. 2.g - Buffer group [6]

2.2. PARTS LISTS (continued)

2.2.6. Buffer group [6]

(a) List of parts (Fig. 2.g)

CAT n°	Description	Qty per unit
123	Block, buffer, assembly	1
123/1	Block, buffer	1
124	Catch, buffer, block	1
125	Spring, buffer block catch	1
126	Plunger, buffer catch	1
127	Pin, axis, buffer catch	1
128	Pin, spring-tubular, slotted	1
129	Buffer	1
130	Cone, inner	1
131	Cone, outer	1
132	Washer, Belleville	11
133	Tube, supporting, washers	1
135	Bush, buffer block	1
136	Washer, tab	1

(b) Description

The buffer group [6] (catalog number (123)), mounted onto the rear part of the receiver (25/1), is used to halt the moving parts group [4] at the end of its rearward movement and to absorb its remaining recoil energy.

It consists of the buffer block (123/1) onto or into which the following components have been installed :

- The buffer (129), the inner cone (130), the outer cone (131) and the 11 Belleville washers (132) provided inside the rear elongated part of the buffer block (123/1)

  These absorbing components have been fitted onto the supporting tube (133) and are held in place by the buffer block bush (135) used in combination with the tab washer (136).

- The buffer block catch (124) which can pivot around its axis (127), which is held back by the pin (128) and which is held in a spring-tensioned position by means of its spring (125) and the plunger (126)

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CHAPTER 3 : OPERATING PRINCIPLES

3.1. SAFETY CATCH (104)

The operation of the MAG™ machine gun depends on the setting of the safety catch (104).

The safety catch (104) can be set at one of the following 2 positions (also refer to § 2.2.5) :

- The (right) position 'S' (safe)

> Please note that the safety catch (104) can only be set at the (right) position 'S' when the machine gun is cocked.

The 'safe' position should be set when the cocked machine gun is not operational or when it should be loaded or transported without any risk.

When the safety catch (104) is set at the (right) position 'S' after the machine gun has been cocked, its plain part will come at the same level as the heel of the sear (101) and will therefore hold back any movement of the sear.

As a result, the moving parts group [4], which is held back by the sear (101), will remain in its rear position, even if the trigger (99) is pulled : the machine gun is 'safe'.

- The (left) position 'F' (fire)

When the safety catch (104) is set at the (left) position 'F', the trigger (99) can be pulled to fire the machine gun if the machine gun has been cocked and an ammunition belt has been loaded.

When the safety catch (104) is set at the (left) position 'F', its notched part will come at the same level as the heel of the sear (101) so that the movement of the sear is no longer hindered. As a result, the machine gun will fire when the trigger (99) is pulled.

3.2. EMPTY MACHINE GUN IN THE INITIAL CONDITION

The initial condition of the machine gun is obtained after having carried out the unloading procedure (refer to § 6.4) and/or after having carried out the safety checks (refer to § 4.2).

The functional parts of the machine gun are in the neutral position and no energy is stored.

3.3. COCKING AND LOADING THE MACHINE GUN

Proceed as described in § 6.2.

When the machine gun is cocked, the rear end of the sear (101) engages the notch in the bottom of the piston assembly (31/1) so that the whole moving parts group [4] is held back, against the force of the return spring assembly (45), at its rear position.

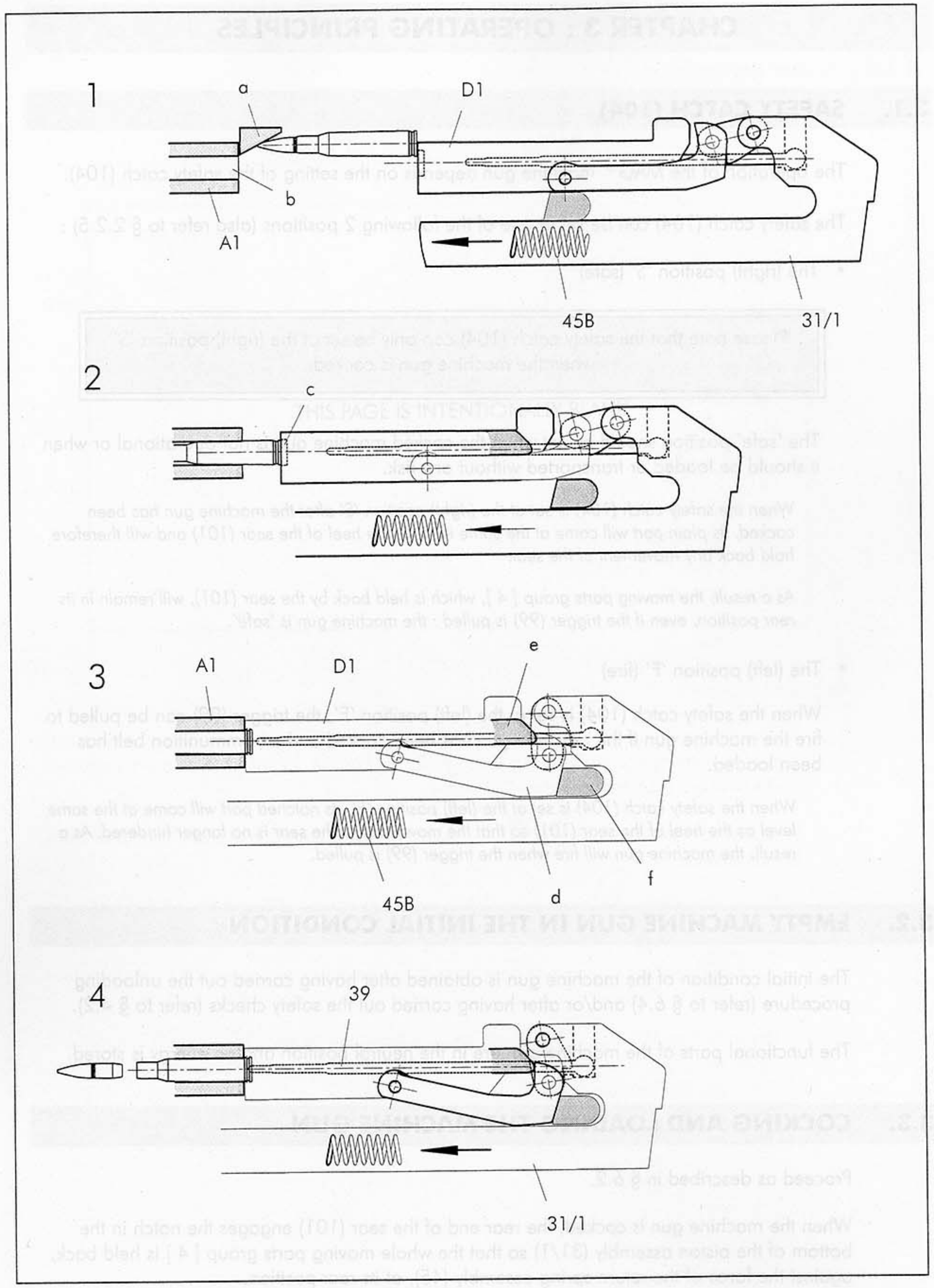

Fig. 3.a - Forward movement of the moving parts

3.4. THE FIRING OPERATION

3.4.1. Forward movement of the moving parts

- The machine gun should have been cocked and the safety catch (104) should be at its (left) position 'F'.
- When the trigger (99) is pulled, the front end of the sear (101) is raised so that its rear end releases the notch in the bottom of the piston assembly (31/1).
- As the moving parts group [4] is no longer held back by the sear (101), it will be propelled forwards by the force of the compressed return spring assembly (45).
- During the forward movement of the moving parts, the following operations take place :
  - The upper front part of the breech block body (D1) comes into contact with the rear part of the first cartridge so that the cartridge is pushed out of its links, guided by the slope (a) and pushed into the chamber (b) of the barrel (A1) (first diagram of Fig. 3.a).

    During its movement towards the chamber, the cartridge also fits with its rear end into the cartridge housing (c) in the front face of the breech block body (D1) (second diagram of Fig 3.a).

    The breech block body (D1) continues pushing the cartridge until it is completely fed into the chamber (b) of the barrel (A1) (third diagram of Fig. 3.a).

    The end of this operation corresponds to the most forward position of the breech block body (D1).

    At that moment, the rim of the cartridge case clicks itself into the extractor (35).

    Also at that moment, the force exerted by the breech block body (D1) is so strong that the ejector (41) is pushed into the breech block.

  - The rear end of the locking lever (d) of the breech block assembly (32) is forced to pivot downwards by the inner guides (e) provided inside the receiver (25/1).

    Once the rear end of the locking lever (d) has reached its lowest position, it will take up its position in front of the locking shoulder (f) also provided inside the receiver (25/1) : it is said that "the breech is locked" (third diagram of Fig. 3.a).

- After the breech block body (D1) has reached its most forward position and the breech has been locked, the piston assembly (31/1) continues its forward movement for a short distance.

  As a result, the tip of the firing pin (39) (which has been fixed to the piston assembly (31/1)) protrudes from the hole in the bottom of the cartridge housing (c) in the front face of the breech block body (D1) : percussion takes place and the round is fired (forth diagram of Fig. 3.a).

  Please note that firing is only possible is the breech has been locked.

  The forward movement of the piston assembly (31/1) is finally stopped when its front end comes into contact with the rear side of the gas cylinder (25BA).

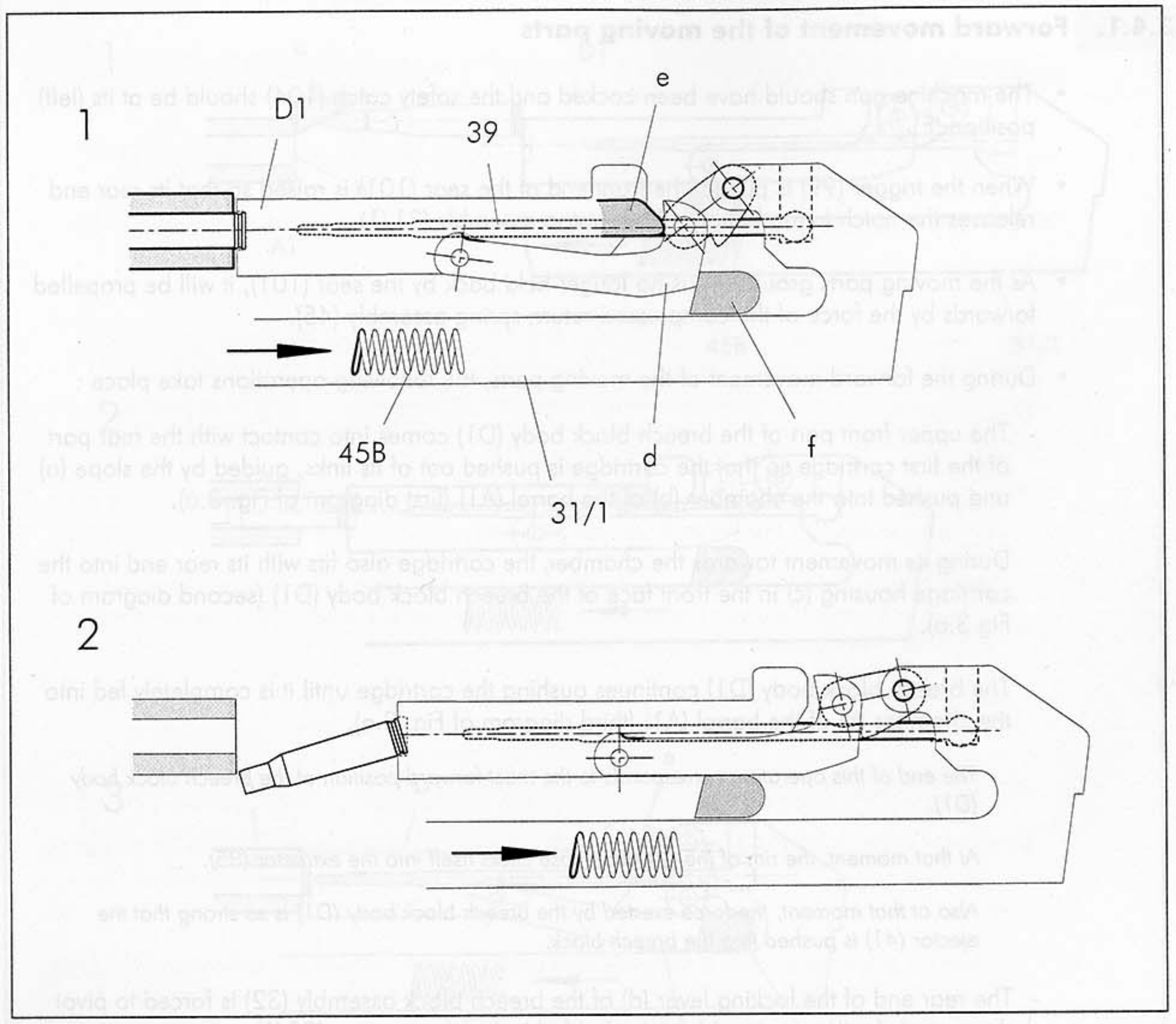

Fig. 3.b - Rearward movement of the moving parts

3.4. THE FIRING OPERATION (continued)

3.4.2. Rearward movement of the moving parts

- When a round is fired, the resulting energy of the gas passing through the gas regulator assembly (A2) causes the piston (31A), and therefore the whole piston assembly (31/1) to move rearwards, against the force of the return spring assembly (45) (first diagram of Fig. 3.b).

  As the firing pin (39) is fixed to the piston assembly (31/1), its tip enters back into the hole in the bottom of the cartridge housing in the front face of the breech block (D1).

- After a short rearward movement of the piston assembly (31/1), the rear end of the locking lever (d) of the breech block assembly (32) is forced to pivot upwards so that it is released from the locking shoulder (f) ("the breech unlocks") and causes the breech block assembly (32) to start its rearward movement (first diagram of Fig. 3.b).

  As the rear end of the locking lever (d) first moves more upwards than rearwards, the rearward movement of the breech block assembly (32) starts relatively slowly and progressively.

  This causes the extractor (35) to start slowly and progressively to extract the empty cartridge case from the chamber of the barrel (A1) : this so-called 'primary extraction' ensures a particularly smooth and effortless functioning of the machine gun.

- As the rearward movement of the breech block assembly (32) continues, the extractor (35) will further extract the empty cartridge case while pressure will be exerted by the ejector (41) on the top rear part of the cartridge case.

  The combined effects of the extractor (35) and the ejector (41) (being held back at its bottom and being pushed at its top rear part) cause the empty case to pivot around the extractor (35) : the case will disengage from the extractor (35) and leave the weapon through the ejection opening (second diagram of Fig. 3.b).

- The rearward movement of the moving parts group [4] is halted when the rear end of the piston assembly (31/1) hits the buffer (129) of the buffer group [6].

  - If the shooter has not released the trigger (99), the moving parts group [4] will be propelled back forwards by the force of the compressed return spring assembly (45) as described in the previous § 3.4.1.
  - If the shooter has released the trigger (99), the tripping lever of the trigger (also refer to § 2.2.5) and the sear spring (102) force the rear end of the sear (101) to engage the notch in the bottom of the piston assembly (31/1) so that the moving parts group [4] is held back at its cocked position.

NOTE : The sear (101) has been provided with a second bent ('IV' on Fig. 2.f), located approx. 15 mm before its rear end, in order to avoid any 'runaway' problem.

'Runaway' is a possible machine gun problem which takes place when the moving parts move far enough rearwards to extract a cartridge from the ammunition belt, but not far enough to be engaged by the sear (101). In such a case, which especially occurs at low firing rates or when shooting under adverse conditions, the machine gun would continue shooting, even if the shooter has released the trigger (99).

The second bent of the sear (101) ensures that, after having released the trigger (99), the moving parts are always engaged if they move enough rearwards to extract a cartridge from the ammunition belt.

Please note that, if the moving parts do not move enough rearwards to extract a cartridge from the ammunition belt, the breech block assembly (32) will close on a empty chamber so that the firing cycle is automatically interrupted.

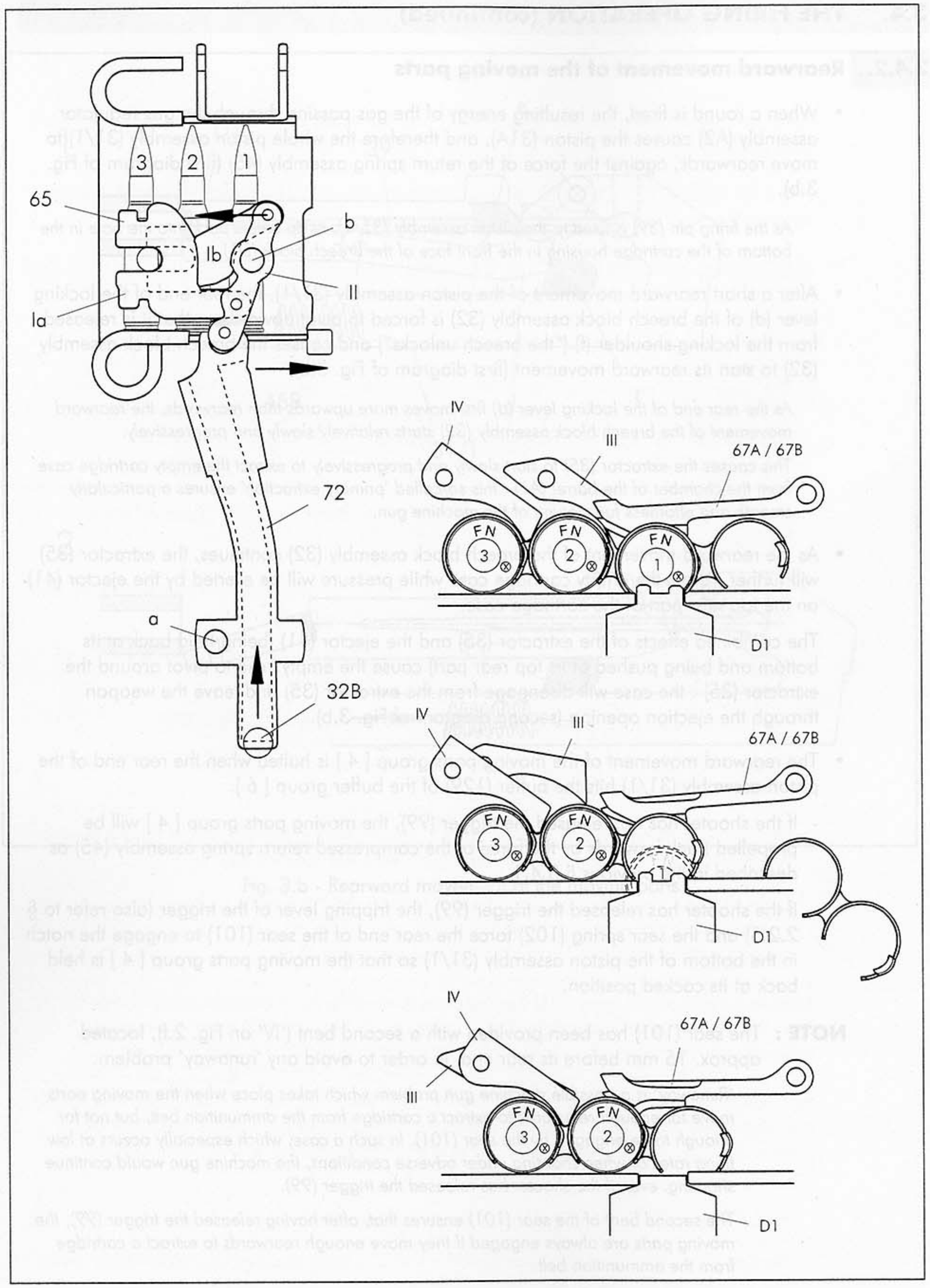

Fig. 3.c - First stage of the cartridge feed operation (during the forward movement of the moving parts)

3.5. THE CARTRIDGE FEED OPERATION

The cartridge feed operation consists of two stages : the first stage takes place during the forward movement of the moving parts, the second stage during their rearward movement.

In order to obtain a movement of the moving parts, it is assumed that the machine gun has been cocked and that the safety catch (104) is at its (left) position 'F'.

It is, of course, also assumed that an ammunition belt has been loaded correctly (also refer to § 6.2).

3.5.1. First stage of the cartridge feed operation (during the forward movement of the moving parts) (Fig. 3.c)

- Before pulling the trigger (99), the moving parts are held back at the rear position and the first cartridge (1) of the ammunition belt is correctly positioned in front of the breech block body (D1).
- When the trigger (99) is pulled, the moving parts are released so that they start their forward movement.
- During the first half of the forward movement of the moving parts, the feed channel roller (32B), which has been provided on top of the breech block assembly (32), moves in the straight part of the feed channel (72) so that the feed link (II) of the feed pawls assembly (65) remains stationary.

  At the same time, the upper front part of the breech block body (D1) comes into contact with the rear part of the first cartridge (1) so that the cartridge is pushed out of its links and towards the chamber of the barrel (A1) as described in § 3.4.1.
- During the second half of the forward movement of the moving parts, the feed channel roller (32B) moves in the bended part of the feed channel (72) : this causes the feed channel to pivot slightly on its mounting pin (a) so that its front end moves towards the right side.

  As a result, the feed link (II), which is actuated by the front end of the feed channel (72), pivots on its mounting pin (b), resulting in :

  - a movement towards the right side of the upper feed slide (Ia) (with the 2 outer pawls (IV))

    During this movement, the outer pawls (IV) exert pressure on the following cartridge (2) so that the latter is pushed towards the right side until it comes into contact with the sloping face of the front and rear retaining pawls (67A) and (67B).

  - a movement towards the left side of the lower feed slide (Ib) (with the inner pawl (III))

    During this movement, the inner pawl (III) is first compressed and forced to pass over the following cartridge (2) (which, like explained above, is slightly moved towards the right side). After that, the inner pawl engages itself, by the force of its springs (65BD) against the left side of the cartridge.

- At the end of the forward movement of the moving parts, the inner pawl (III) and the 2 outer pawls (IV) exert pressure on the left side of the following cartridge (2).

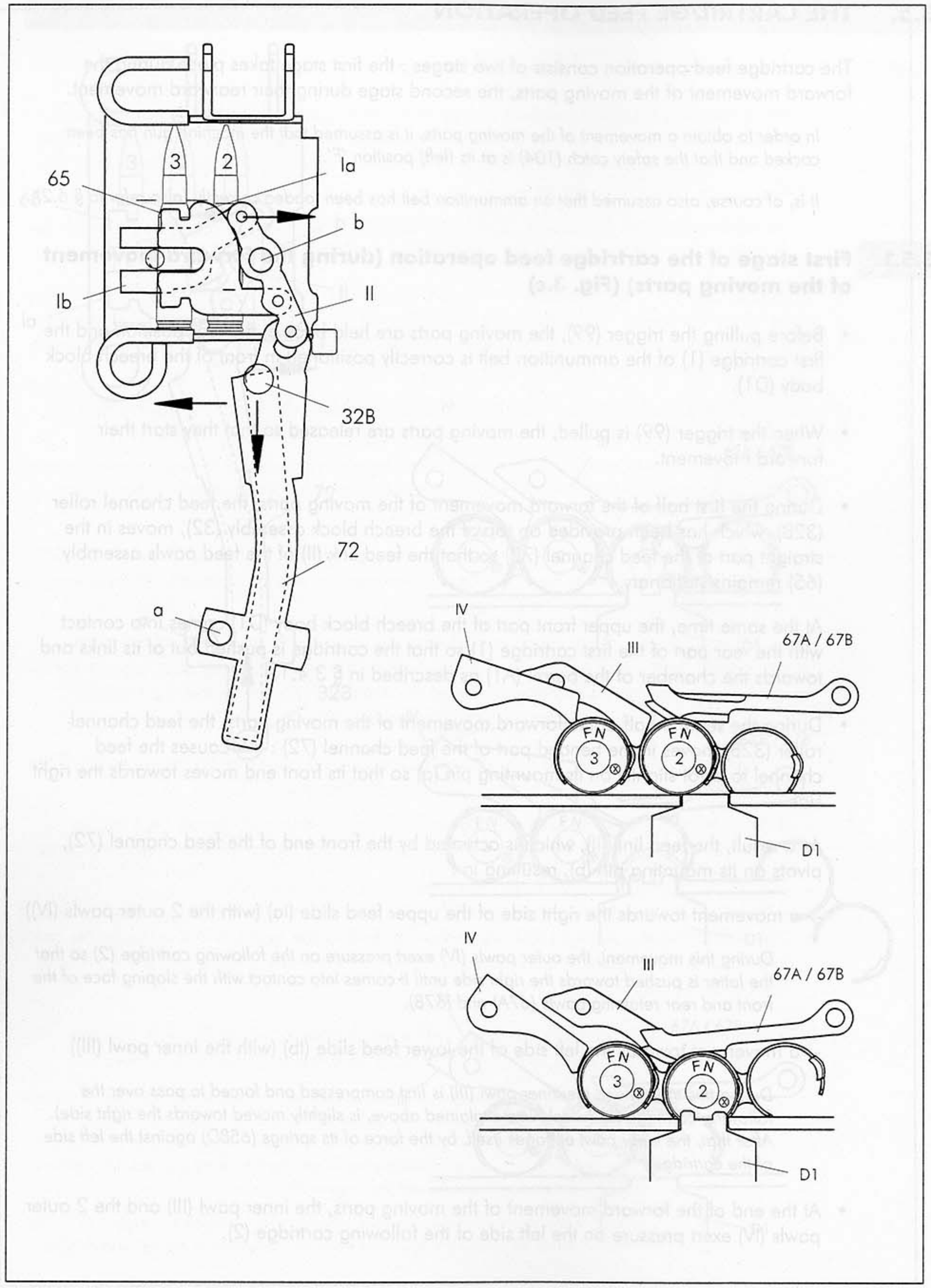

Fig. 3.d - Second stage of the cartridge feed operation (during the rearward movement of the moving parts)

3.5. THE CARTRIDGE FEED OPERATION (continued)

3.5.2. Second stage of the cartridge feed operation (during the rearward movement of the moving parts) (Fig. 3.d)

- When the first cartridge is fired, the resulting gas energy causes the moving parts to move rearwards.
- During the first half of the rearward movement of the moving parts, the feed channel roller (32B), which has been provided on top of the breech block assembly (32), moves in the bended part of the feed channel (72) : this causes the feed channel to pivot slightly on its mounting pin (a) so that its front end moves towards the left side.

  As a result, the feed link (II) of the feed pawls assembly (65), which is actuated by the front end of the feed channel (72), pivots on its mounting pin (b), resulting in :

  - a movement towards the right side of the lower feed slide (Ib) (with the inner pawl (III))

    During this movement, the inner pawl (III) exerts pressure on the following cartridge (2) so that the latter is pushed towards the right side.

    During its movement towards the right side, the following cartridge (2) forces the front and rear retaining pawls (67A) and (67B) to raise so that it fits into position under the pawls.

  - a movement towards the left side of the upper feed slide (Ia) (with the 2 outer pawls (IV))

    During this movement, the outer pawls (IV) are first compressed and forced to pass over the third cartridge (3) (which is slightly moved towards the right side as it is linked to the 'following' cartridge (2) by means of a link). After that, the outer pawls engage themselves, by the force of their springs (65AE) against the left side of the third cartridge.

- During the second half of the rearward movement of the moving parts, the feed channel roller (32B) moves in the straight part of the feed channel (72) so that the feed link (II) does no longer move.
- At the end of the rearward movement of the moving parts, the following cartridge (2) is correctly positioned at its feeding position in front of the breech block body (D1) by means of the retaining pawls.

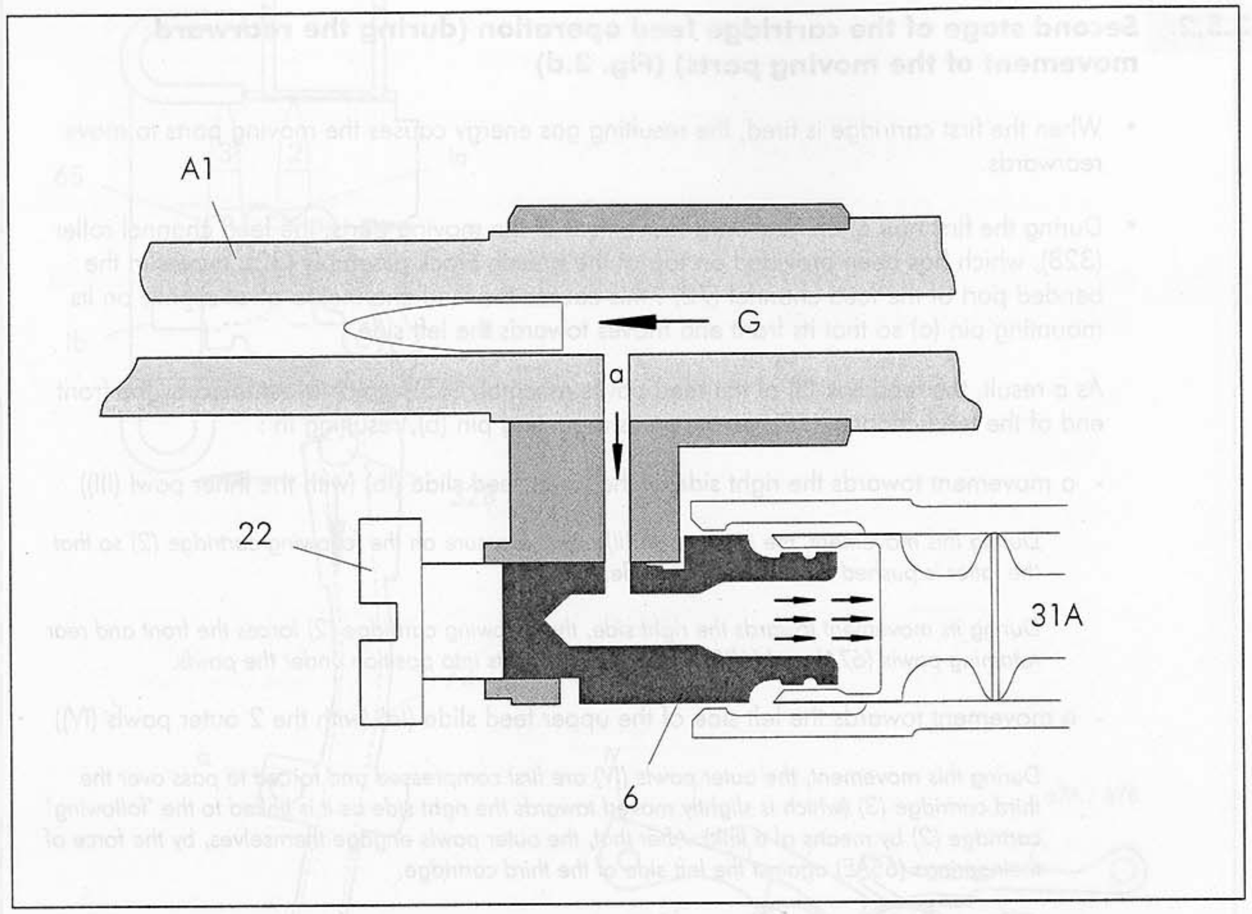

Fig. 3.e - Gas regulator assembly (A2)

3.6. THE GAS REGULATOR

- When the bullet passes through the barrel (A1), part of the propellant gas (G) follows the bullet as it leaves the barrel while the other part of the gas passes through the hole (a) in the gas block of the barrel.
- The gas passing through the hole (a) enters the gas regulator plug (6) (part of the gas regulator assembly (A2)) which has been provided with 3 gas inlet holes.
- Each gas inlet hole of the gas regulator plug (6) corresponds to a firing rate position, indicated by a number engraved in the body of the plug.
- The gas regulator plug (6) fits into and is secured by the gas regulator assembly securing ring (22).
- The firing rate depends on the orientation of the gas regulator plug (6) which is determined when reassembling the gas regulator after field stripping.
- When the gas regulator plug (6) is at the position '1', its smallest gas inlet hole faces the hole (a) in the gas block of the barrel (A1), so that the amount of gas striking the head of the piston (31A), and therefore also the firing rate, is at its minimum.

  When the gas regulator plug (6) is at the position '3', its largest gas inlet hole faces the hole (a) in the gas block of the barrel (A1), so that the amount of gas striking the head of the piston (31A), and therefore also the firing rate, is at its maximum.

  Normally, the gas regulator assembly (A2) should be set at the position '2'.

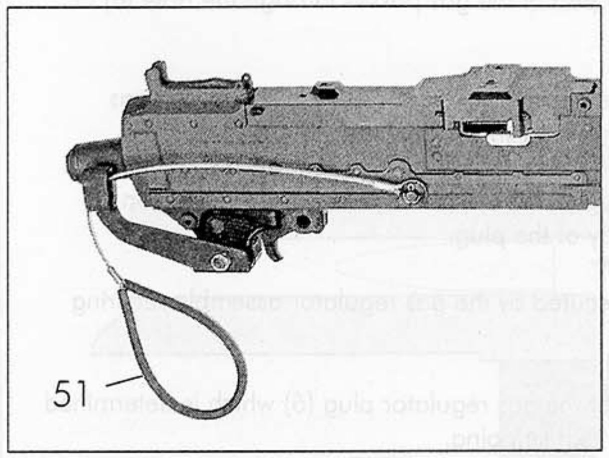

Fig. 4.a - Cocking the machine gun by pulling the cocking cable (51) completely rearwards and then releasing it (*only MAG™ L7A2(360)*)

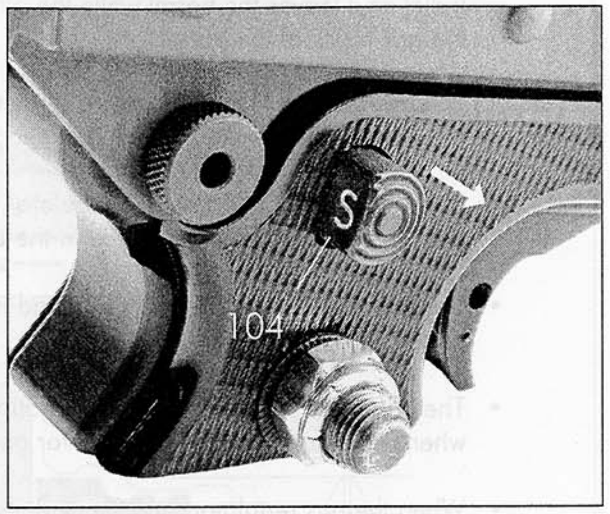

Fig. 4.b - Safety catch (104) set at the (right) position 'S' (safe)

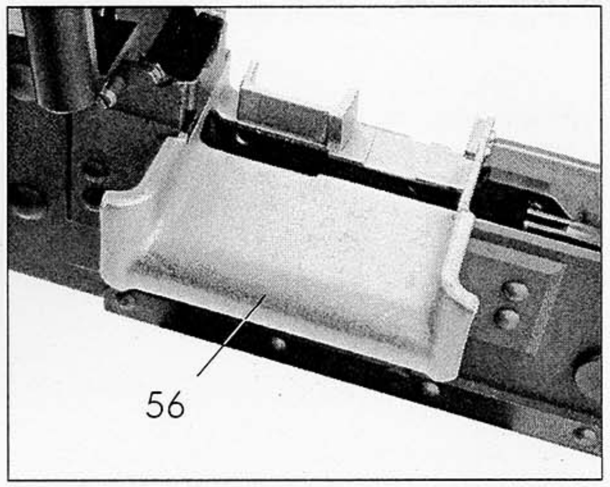

Fig. 4.c - Checking if the feed tray (56) is empty

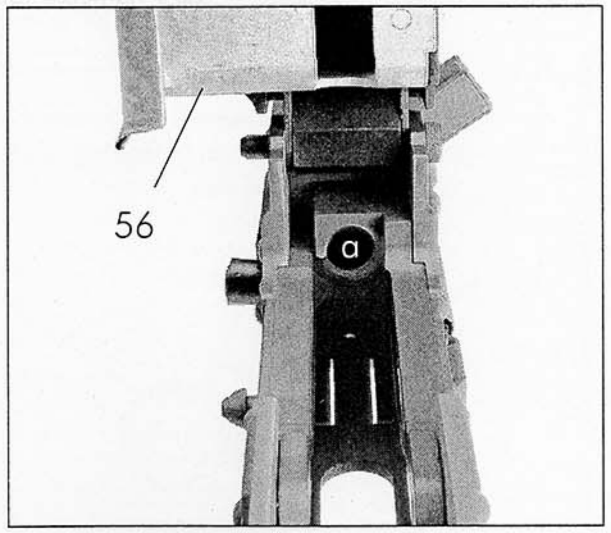

Fig. 4.d - Checking if the chamber (a) is empty

CHAPTER 4 : SAFETY INFORMATION

4.1. WARNINGS AND CAUTIONS

The following instructions should be read before loading and firing the weapon and before any intervention (disassembly, maintenance, ...) on it :

☑ The MAG™ machine gun can cause injury or death up to 4200 metres.

☑ Always handle the MAG™ machine gun, like any other weapon, with extreme care and with the respect due to a loaded gun, even though you are certain the gun is unloaded. Never touch the trigger unless you are ready to fire.

☑ Never modify parts of the gun. Repairs and disassembly exceeding the basic field stripping may only be carried out by qualified armourers or by FN HERSTAL.

☑ If the weapon has been heavily oiled or greased for shipment or storage, clean it thoroughly and lightly lubricate the metal parts before firing.

☑ The barrel should be perfectly dry before firing.

☑ Never try to clear a barrel obstruction by firing.

4.2. SAFETY CHECKS

Carry out the following procedure in order to ensure that the MAG™ machine gun can be manipulated, stored and/or transported without any risk :

- Pointing it in a safe direction, cock the machine gun.

  In case of the MAG™ L7A2(310), proceed as described for the weapon system into which the machine gun is incorporated.

  In case of the MAG™ L7A2(360), pull the cocking cable (51) completely rearwards and release it (Fig. 4.a).

- Set the safety catch (104) at the (right) position 'S' (safe) (Fig. 4.b).
- Open the feed cover assembly (55) by using its catches (74) and ensure that there is no ammunition on the feed tray (56) (Fig. 4.c).

  If there is ammunition on the feed tray, unload the machine gun as described in § 6.4.

- Lift the feed tray (56) and then look into the chamber (a) in order to ensure that there is no cartridge (Fig. 4.d).

  If there is a cartridge in the chamber (a), unload the machine gun as described in § 6.4.

- Lower the feed tray (56) and then close the feed cover assembly (55).
- Set the safety catch (104) at the (left) position 'F' (fire).
- Pointing it in a safe direction, decock the machine gun by pulling the trigger (99).

Please note that the safety catch (104) can only be set at the (right) position 'S' when the machine gun is cocked.

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CHAPTER 5 : RECEPTION OF THE GUN

Before any intervention on the MAG™ machine gun, ensure to be familiar with the safety information given in chapter 4 of this Maintenance Manual.

- Take the packing case and inspect it for damage.

  If the packing case shows traces of deterioration, take note of them (detailed description or photo) and report it to FN Herstal.

- Open the packing case and check its contents according to the packing list.

  If there is a problem, report it to FN Herstal.

- Assemble the machine gun.

  If something seems abnormal, report it to FN Herstal.

- Carry out the field stripping procedure (refer to chapter 7).

  If something seems abnormal, report it to FN Herstal.

- Clean the bore of the barrel (A1) to remove the existing preservation lubricant.

  Remove the preservation lubricant from the moving parts group [4].

  For more detailed cleaning instructions, refer to chapter 8.

- Lubricate the bore of the barrel (A1) and the moving parts group [4] with a maintenance or functional lubricant.

  At this stage, the other parts of the MAG™ machine gun do not require lubrication.

  For more detailed lubrication instructions, refer to chapter 8.

- Reassemble the machine gun.

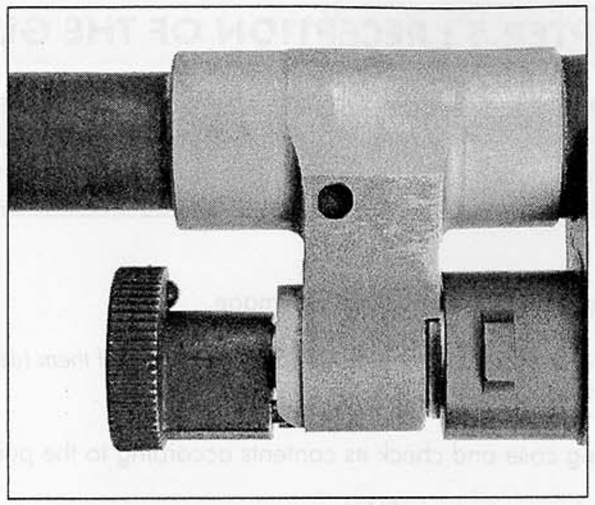

Fig. 6.a - Gas regulator assembly (A2)

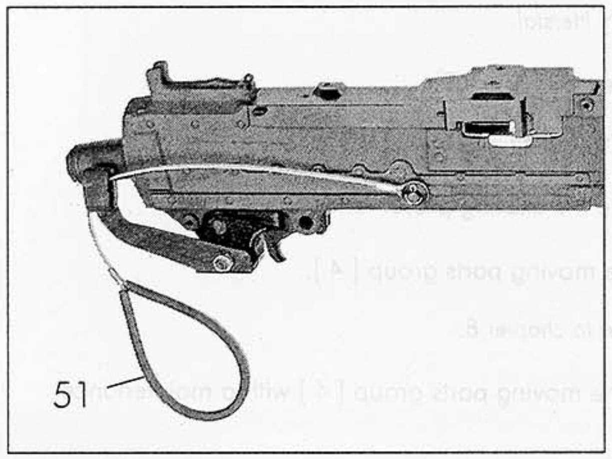

Fig. 6.b - Cocking the machine gun by pulling the cocking cable (51) completely rearwards and then releasing it *(only MAG™ L7A2(360))*

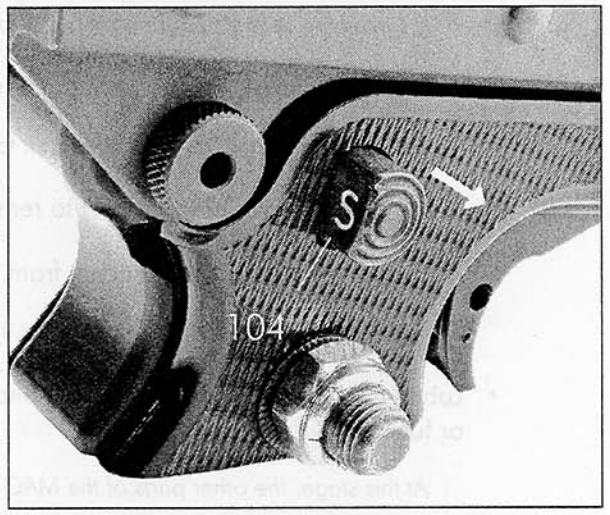

Fig. 6.c - Safety catch (104) set at the (right) position 'S' (safe)

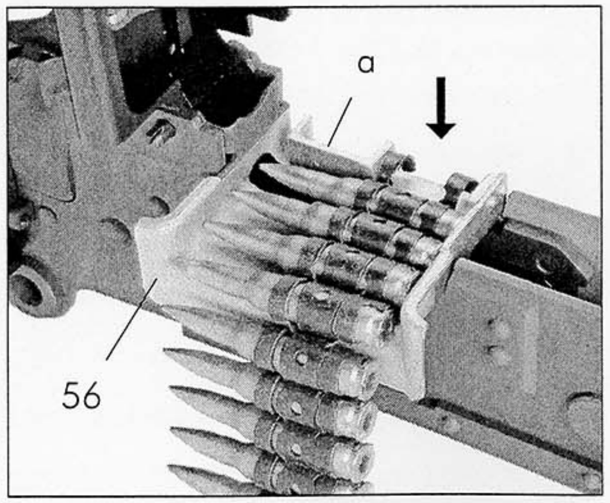

Fig. 6.d - Placing the ammunition belt onto the feed tray (56)

CHAPTER 6 : USING THE MACHINE GUN

Before using the MAG™ machine gun, ensure to be familiar with the safety information given in chapter 4 of this Maintenance Manual.

6.1. GAS REGULATOR ASSEMBLY (A2)

The gas regulator assembly (A2), and therefore also the firing rate, cannot be adjusted during normal use of the machine gun.

The firing rate, which can be set at 3 positions, depends on the orientation of the gas regulator plug (6) which is determined when reassembling the gas regulator assembly (A2) after field stripping (refer to § 7.2).

6.2. COCKING AND LOADING THE MACHINE GUN

It is assumed that § 4.2. "Safety checks" has been carried out.

- Pointing it in a safe direction, cock the machine gun.

  In case of the MAG™ L7A2(310), proceed as described for the weapon system into which the machine gun is incorporated.

  In case of the MAG™ L7A2(360), pull the cocking cable (51) completely rearwards and release it (Fig. 6.b).

- Set the safety catch (104) at the (right) position 'S' (safe) (Fig. 6.c).
- Open the feed cover assembly (55) by using its catches (74).
- Place the ammunition belt onto the feed tray (56) (Fig. 6.d).

  The ammunition belt should be oriented so that the open sides of the links are facing downwards.

  The first cartridge of the ammunition belt should be positioned against the stop (a) of the feed tray (56).

- Close the feed cover assembly (55).

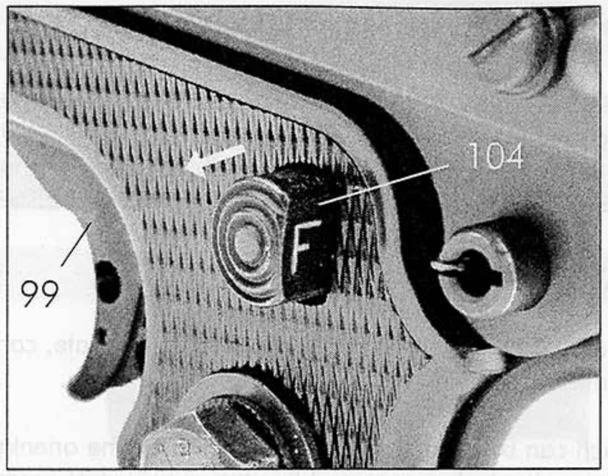

Fig. 6.e - Pulling the trigger (99) after having set the safety catch (104) at the (left) position 'F' (fire)

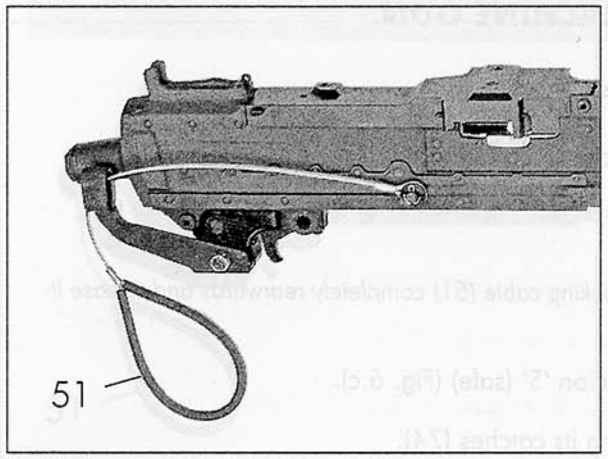

Fig. 6.f - Cocking the machine gun by pulling the cocking cable (51) completely rearwards and then releasing it *(only MAG™ L7A2(360))*

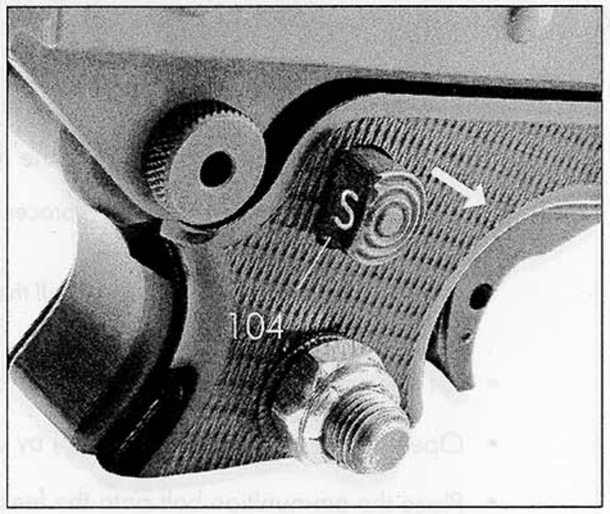

Fig. 6.g - Safety catch (104) set at the (right) position 'S' (safe)

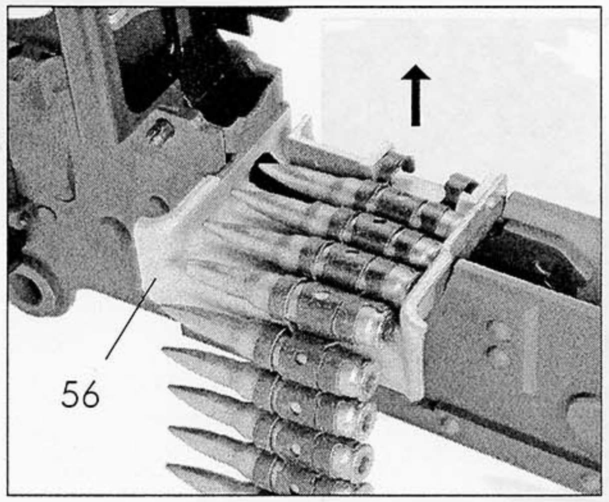

Fig. 6.h - Removing the ammunition belt from the feed tray (56)

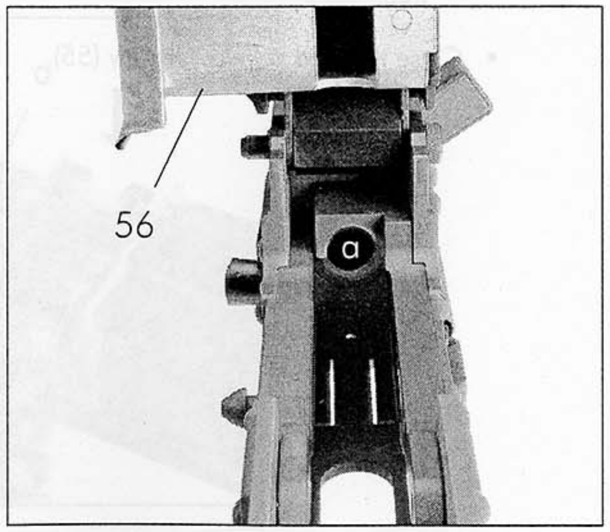

Fig. 6.i - Checking if the chamber (a) is empty

6.3. FIRING THE MACHINE GUN

Ensure that § 8.2. "Cleaning and lubrication before firing" has been carried out.

- If not already done, cock and load the machine gun as described in § 6.2.
- Set the safety catch (104) at the (left) position 'F' (fire) (Fig. 6.e).
- Aim the machine gun and then pull the trigger (99) (Fig. 6.e).

NOTE : In case of intensive shooting, and in order to avoid excessive heating of the barrel (A1), it is recommended to use more than one barrel group [1].

For more information about the replacement of a barrel group [1] by another one, refer to the removal and the reinstallation of the barrel group [1] described in chapter 7.

6.4. UNLOADING THE MACHINE GUN

- Pointing it in a safe direction, cock the machine gun.

  In case of the MAG™ L7A2(310), proceed as described for the weapon system into which the machine gun is incorporated.

  In case of the MAG™ L7A2(360), pull the cocking cable (51) completely rearwards and release it (Fig. 6.f).

- Set the safety catch (104) at the (right) position 'S' (safe) (Fig. 6.g).
- While holding the ammunition belt, open the feed cover assembly (55) by using its catches (74) and then remove the ammunition belt (Fig. 6.h).

  If present, remove any remaining part of ammunition belt from the feed tray (56).

- Lift the feed tray (56) and then look into the chamber (a) in order to ensure that there is no cartridge (Fig. 6.i).

  If there is a cartridge in the chamber (a), first try if it can be removed by firing as described in § 6.3.

  For this try, take into account all the safety precautions and note that it is not necessary to load an ammunition belt.

  If the cartridge cannot be removed by firing, remove the barrel group [1] as described in § 7.1, ensure that the barrel has cooled down enough and then try to remove the cartridge with a tool such as a screwdriver or pliers.

  During this operation, NEVER touch the primer of the cartridge with the tool (in order to avoid any risk of explosion) and ensure that the barrel is ALWAYS pointing in a safe direction !

- Lower the feed tray (56) and then close the feed cover assembly (55).
- Set the safety catch (104) at the (left) position 'F' (fire).
- Pointing it in a safe direction, decock the machine gun by pulling the trigger (99).

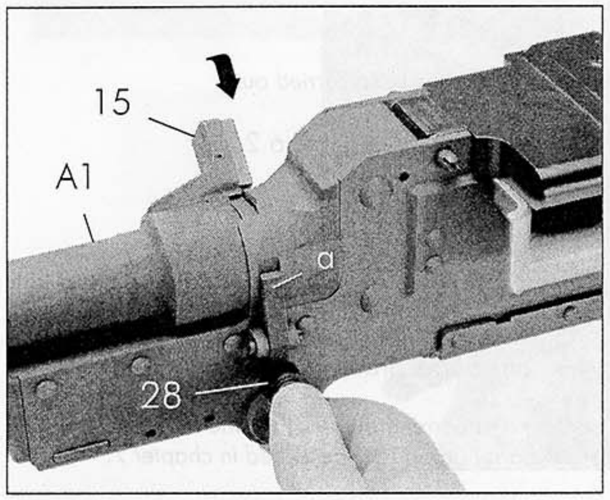

Fig. 7.a - Unlocking the barrel (A1)

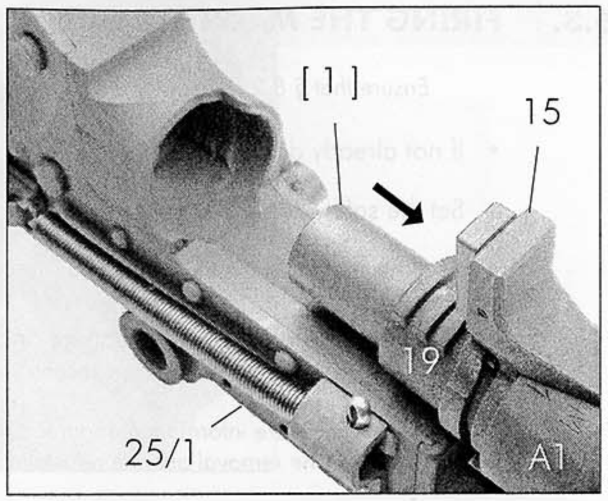

Fig. 7.b - Removal of the barrel group [1]

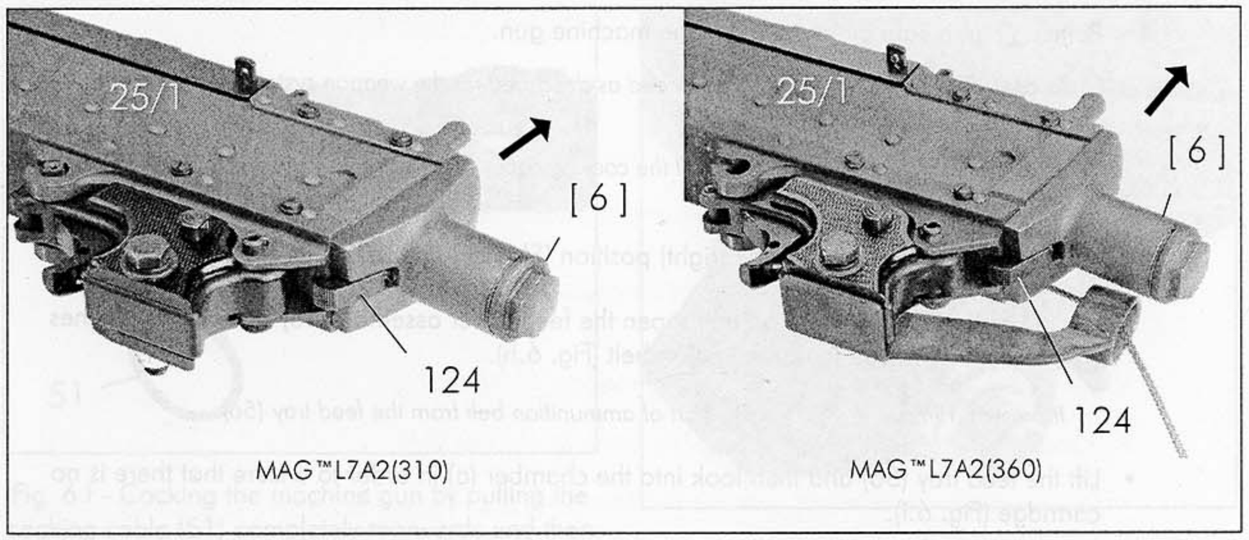

Fig. 7.c - Releasing and removal of the buffer group [6]

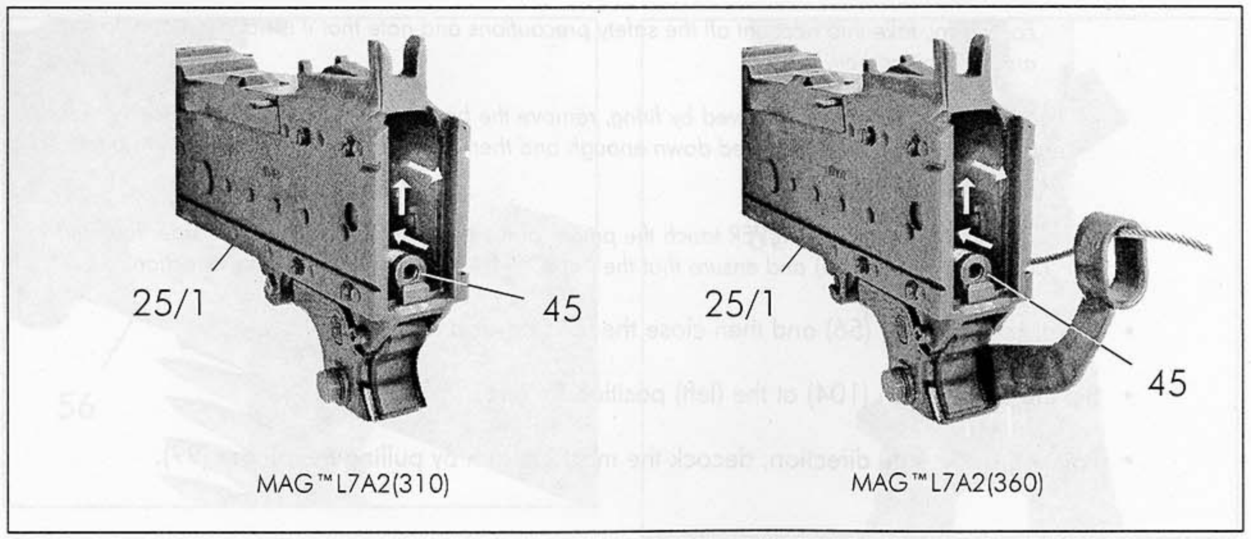

Fig. 7.d - Removal of the return spring assembly (45)

CHAPTER 7 : FIELD STRIPPING

Before any intervention on the MAG™ machine gun, ensure to be familiar with the safety information given in chapter 4 of this Maintenance Manual.

7.1. DISASSEMBLING THE MACHINE GUN

It is very important to become familiar with the field stripping procedure of the machine gun as field stripping is required during the cleaning procedure which ensures reliable operation of the machine gun.

- If not already done, completely unload the machine gun (refer to § 6.4) and/or carry out the safety checks (refer to § 4.2).

After this operation, the machine gun is in the decocked condition which is absolutely necessary in order to release the pressure on the return spring assembly (45) so that the assembly can be removed (see further) without any risk.

- While pushing on the barrel locking catch (28) so that its upper part (a) is released from the flange of the barrel nut (19), unlock the barrel (A1) by turning the barrel bracket (15) towards its vertical position (Fig. 7.a).
- Using the barrel bracket (15) in its vertical position, take the barrel group [1] forwards out of its housing in the receiver (25/1) and then lift it up and off the machine gun (Fig. 7.b).
- Using the buffer block catch (124), unlock the buffer group [6] and then slide the group up and off the receiver (25/1) (Fig. 7.c).
- Ensure that the machine gun is in the uncocked condition (see above), unhook the rear end of the return spring assembly (45) and then take the assembly out of the rear side of the receiver (25/1) (Fig. 7.d).

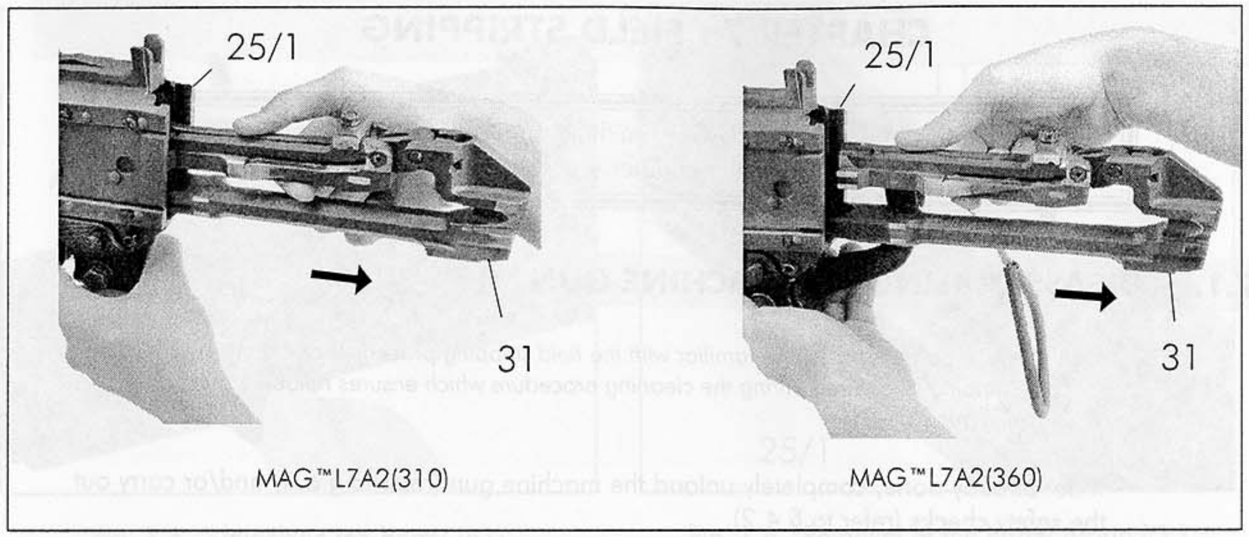

Fig. 7.e - Removal of the moving parts assembly (31)

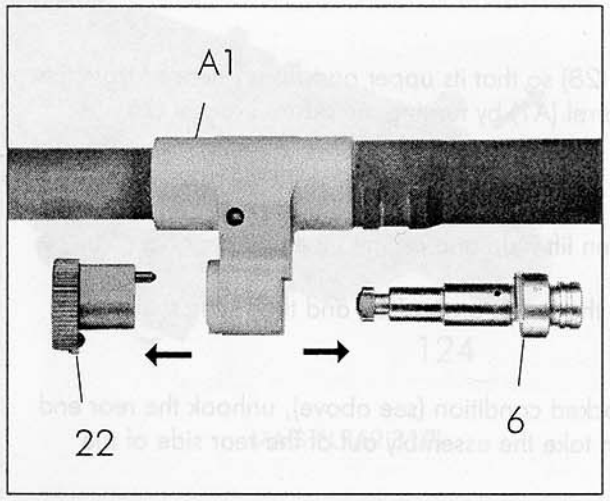

Fig. 7.f - Disassembly of the gas regulator assembly (A2)

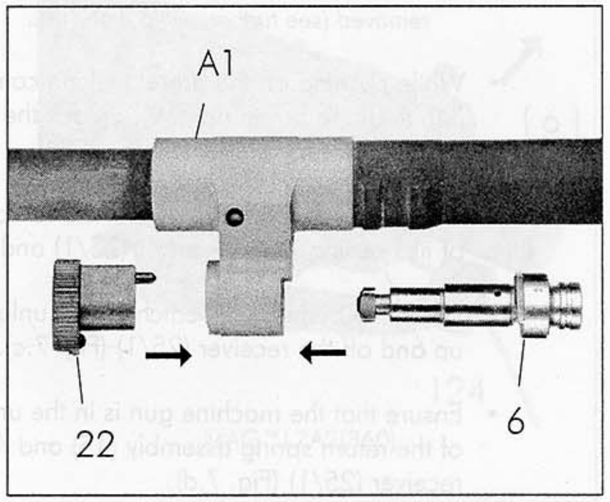

Fig. 7.g - Reinstallation of the components of the gas regulator assembly (A2)

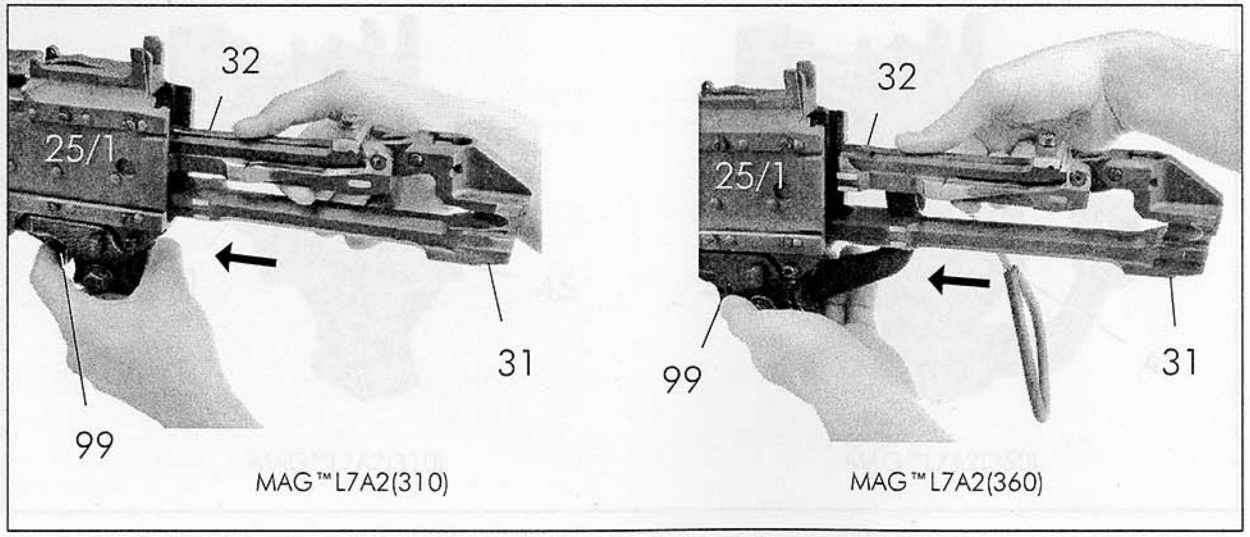

Fig. 7.h - Reinstallation of the moving parts assembly (31)

7.1. DISASSEMBLING THE MACHINE GUN (continued)

- Move the moving parts assembly (31) rearwards by pulling the cocking handle assembly (50) rearwards and then back forwards.
- Take the moving parts assembly (31) out of the rear side of the receiver (25/1) (Fig. 7.e).
- Take the barrel group [1] and then, at the front side of its gas block, release and remove the gas regulator assembly securing ring (22) from the gas regulator plug (6) (Fig. 7.f).
- Take the gas regulator plug (6) out of the rear side of the gas block of the barrel (A1) (Fig. 7.f).

  If it is difficult to remove the gas regulator plug (6), tap lightly on it by using a tool such as the OREA 2046.

This level of disassembly is sufficient to perform thorough cleaning : further disassembly should only be carried out by an authorized armourer or by FN HERSTAL.

7.2. REASSEMBLING THE MACHINE GUN

- Ensure that all the components of the machine gun are perfectly clean.
- From the rear side, insert the gas regulator plug (6) into the gas block of the barrel (A1) (Fig. 7.g).

  The gas regulator plug (6) can be reinstalled at 3 orientations (indicated by 3 engraved numbers on its body) allowing an adjustment of the firing rate :

  - *If the machine gun is used for the first time after it has been cleaned, it is recommended to reinstall the gas regulator plug (6) at the position '2'.*
  - *If, for any reason, the firing rate is too high, reinstall the gas regulator plug (6) at the position '1'.*
  - *If, during the shooting, the firing rate slows down, compensate it by reinstalling the gas regulator plug (6) at the position '3'.*

    Take into account that the firing rate may slow down more quickly if the machine gun is used under adverse conditions (dust, sand, mud, ...).

- Fit the gas regulator assembly securing ring (22) onto the front end of the gas regulator plug (6) (Fig. 7.g).
- Reinsert the moving parts assembly (31) into the rear side of the receiver (25/1) (Fig. 7.h).

  While inserting the moving parts assembly (31) into the rear side of the receiver (25/1), pull the trigger (99) in order to free the passage for the bottom of the piston assembly (31/1) and hold the breech block assembly (32) in the upper position.

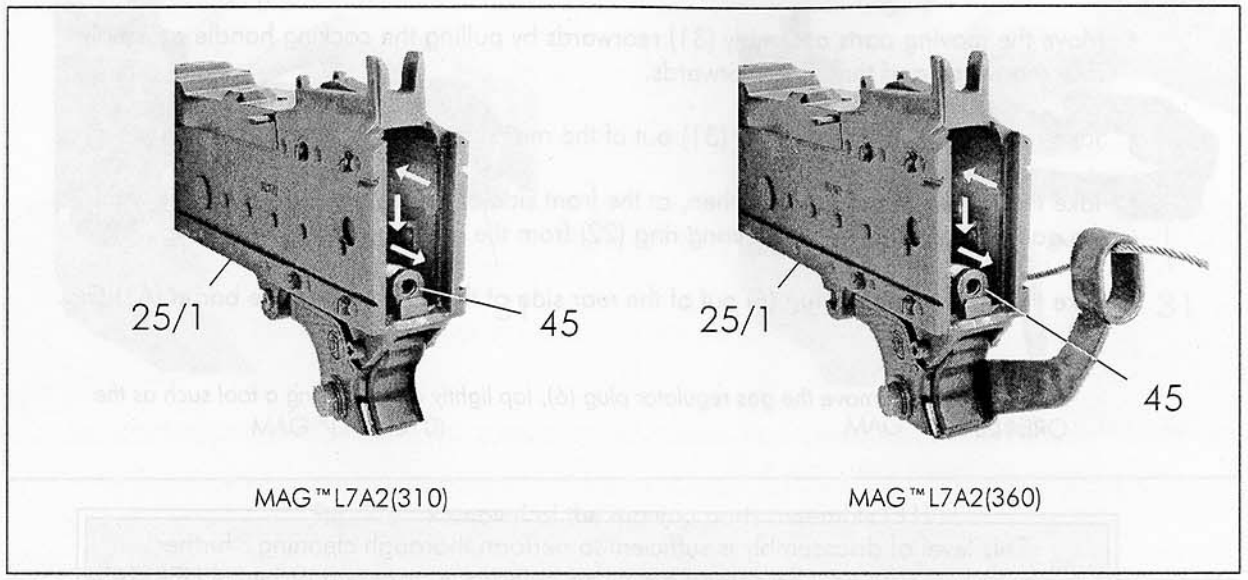

Fig. 7.i - Reinstallation of the return spring assembly (45)

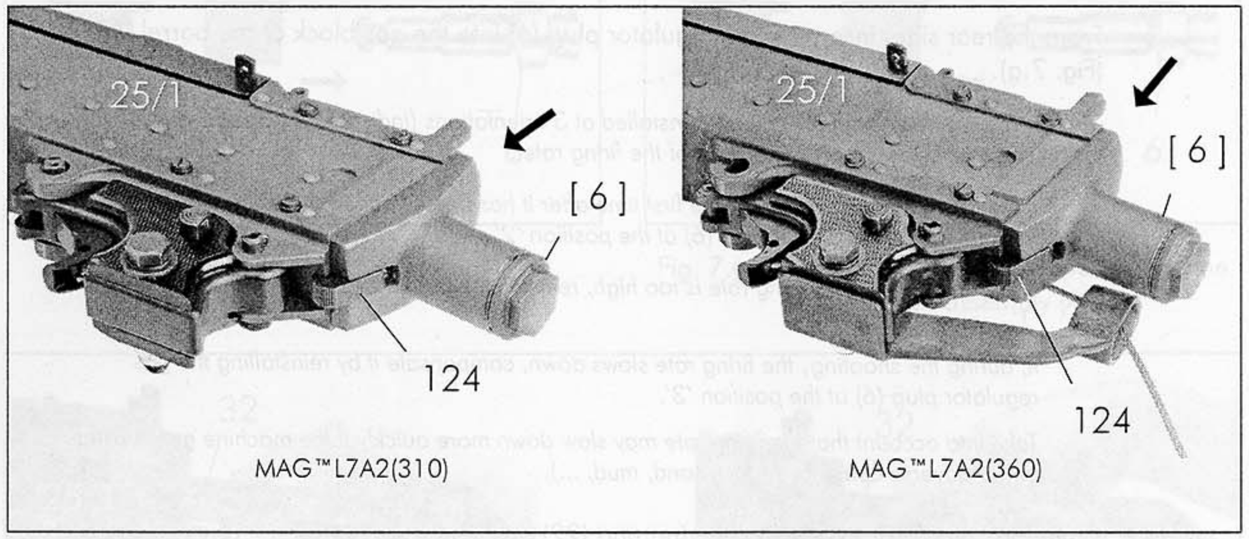

Fig. 7.j - Reinstallation of the buffer group [6]

7.2. REASSEMBLING THE MACHINE GUN (continued)

- Reinsert the return spring assembly (45) into the rear side of the receiver (25/1) and then hook its rear end into position (Fig. 7.i).
- Reinstall the buffer group [6] (Fig. 7.j).

Ensure that, at the end of this operation, the buffer block catch (124) locks correctly into position.

- Place the barrel group [1] onto the receiver (25/1) (Fig. 7.k).
- Ensure that the barrel group [1] is fully engaged in the receiver (25/1) (Fig. 7.k).

When the barrel group [1] is fully engaged in the receiver (25/1), the outer guides (a) of the barrel nut (19) correctly face the corresponding inner guides (b) in the frame of the receiver.

- Lock the barrel (A1) into position by turning the barrel bracket (15) as far as possible downwards towards the right side (Fig. 7.k).

During this operation, the outer guides (a) of the barrel nut (19) engage the corresponding inner guides (b) in the frame of the receiver (25/1).

If, during this operation, more than 5 clicks can be heard, check and correct the locking of the barrel (A1) as described in § 9.1.3.

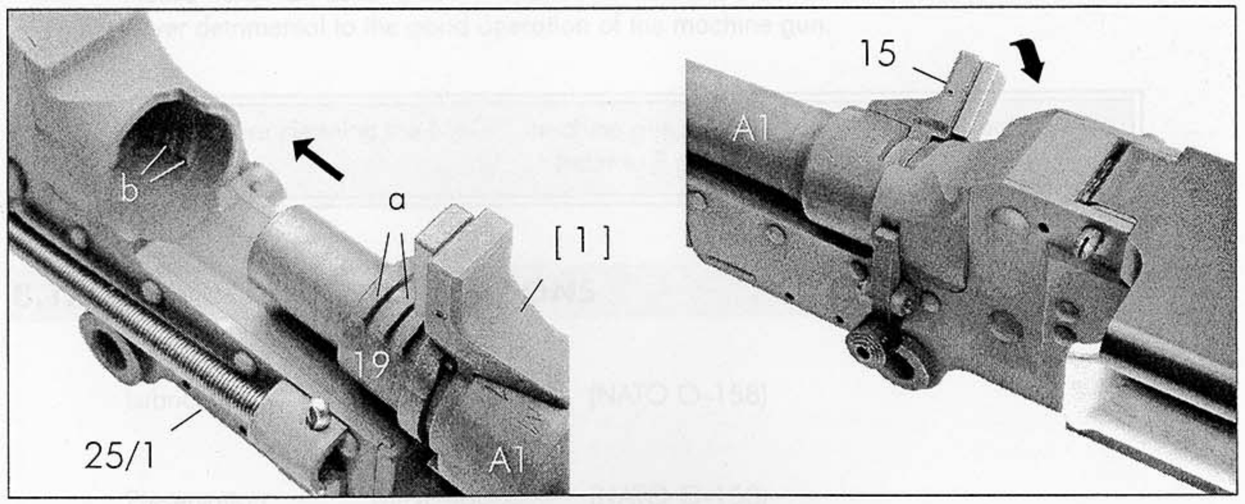

Fig. 7.k - Reinstallation of the barrel group [1] and locking the barrel (A1) into position

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CHAPTER 8 : MAINTENANCE

Before any intervention on the MAG™ machine gun, ensure to be familiar with the safety information given in chapter 4 of this Maintenance Manual.

The frequency at which the MAG™ machine gun should be cleaned and lubricated depends on the ammunition used, the weather and shooting conditions and other external factors.

When using normal ammunition under normal conditions, it is a good rule to clean and lubricate the machine gun after every use or, in case of intensive shooting, after each 1800 rounds : correct maintenance will enhance the longevity of the gun.

Under normal conditions, it is recommended to lubricate all the friction surfaces, with the exception of those directly in contact with the propellant gases.

It is especially recommended to ensure that the return spring assembly (45), the breech block assembly (32), the slide (31B), the ammunition feeding mechanism and the trigger group [5] are correctly lubricated.

On the other hand, the bore of the barrel (A1), the front face of the breech block body (D1), the piston (31A), the gas regulator assembly (A2), the gas cylinder (25BA) and the outside of the weapon should be dry before using the machine gun.

If the machine gun is used intensively and under adverse conditions, it is recommended to check regularly the gas regulator assembly (A2) and the gas cylinder (25BA) for carbon deposits. If necessary, and taking into account that this is an operation which can also be carried out in the field, the carbon deposits should be scraped off as explained in § 8.3.

Please note that, as long as it is applied to the correct surfaces or parts, too much lubrication is never detrimental to the good operation of the machine gun.

Before cleaning the MAG™ machine gun, ALWAYS ensure that it is unloaded (refer to § 6.4).

8.1. LUBRICANT SPECIFICATIONS

Lubrication	:	MIL-L-46000	(NATO O-158)
Preservation	:	MIL-L-46000	(NATO O-158)

Never use hydrocarbons, trichlorethylene, ammonia nor teflon-based lubricants : they could cause damage to the gun !

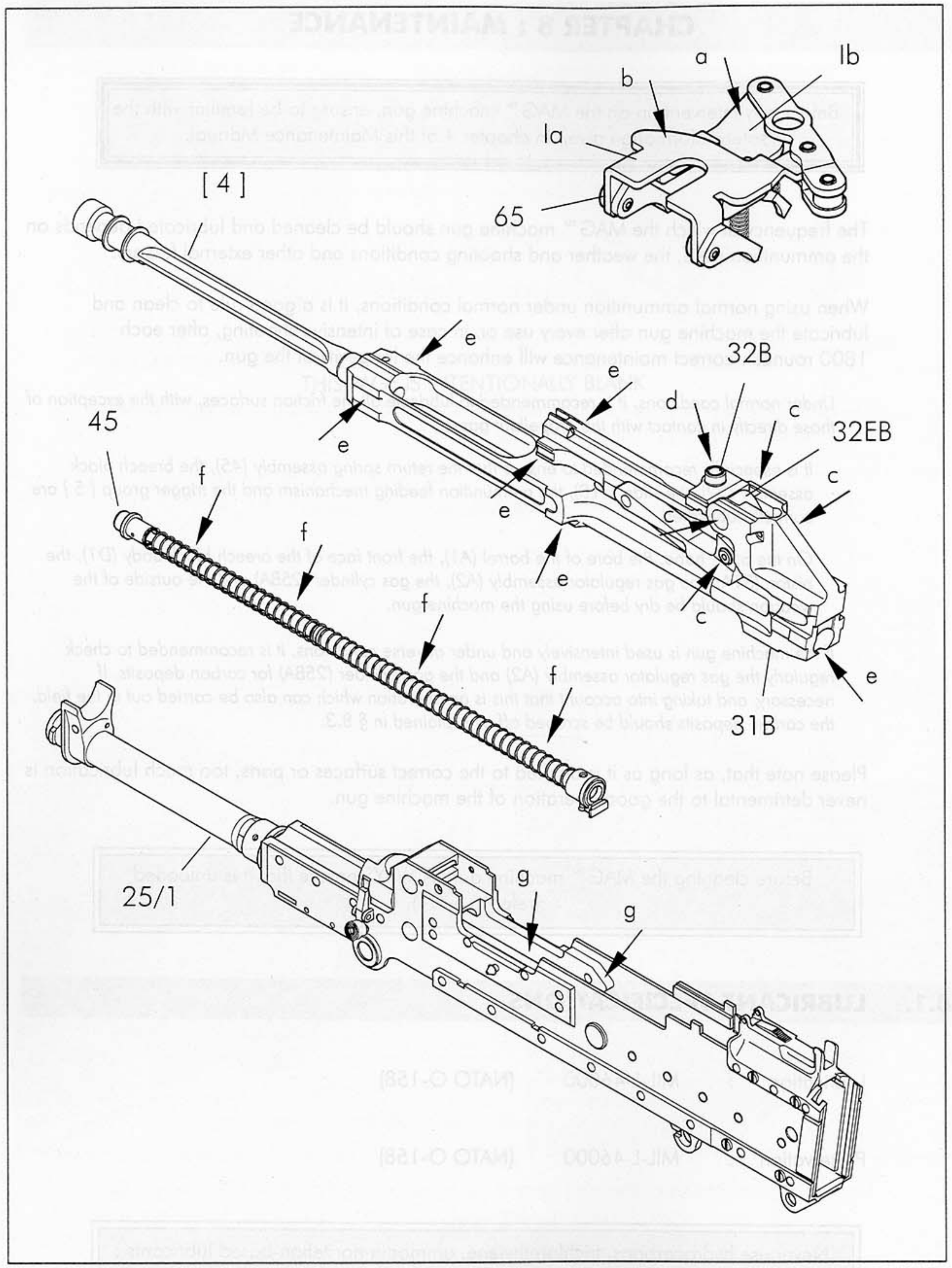


Fig. 8.a - Points to be lubricated before firing

8.2. CLEANING AND LUBRICATION BEFORE FIRING

The following procedure assumes that the MAG™ machine gun has correctly been cleaned and lubricated the last time it has been used (also refer to § 8.3).

If the MAG™ machine gun is used for the first time upon purchase, it is assumed that the procedure described in chapter 5 has been carried out.

- Carry out the field stripping procedure as described in § 7.1.
- Using the cleaning tools OREA 271 and OREA 83 and clean rags (pieces of flannel), remove the maintenance lubricant from the inside of the barrel (A1) until the last rag is clean (also refer to Fig. 8.c).
- Dry the inside of the barrel (A1).
- Remove the maintenance lubricant from the moving parts group [4].
- Slightly lubricate by proceeding as follows (Fig. 8.a) :
    - Apply functional lubricant between the upper and lower feed slides (Ia) and (Ib) of the feed pawls assembly (65) (refer to the arrow 'a').
    - Apply functional lubricant between the upper feed slide (Ib) of the feed pawls assembly (65) and its contact surface of the feed cover (55/1) (refer to the arrow 'b').
    - Apply functional lubricant to all the pivoting points of the breech block link (32EB) (refer to the arrows 'c').
    - Apply functional lubricant to the feed channel roller (32B) (refer to the arrow 'd').
    - Apply functional lubricant to the sliding surfaces of the slide (31B) (refer to the arrows 'e').
    - Apply functional lubricant to the return spring assembly (45) (refer to the arrows 'f').
    - Apply functional lubricant to all the inner guides of the receiver (25/1) which are used to guide the different components of the moving parts group [4] (refer to the arrows 'g').
- Reassemble the machine gun as described in § 7.2.

Before each shooting sequence, ALWAYS check the barrel (A1) for obstructions and ensure that it is dry and clean.

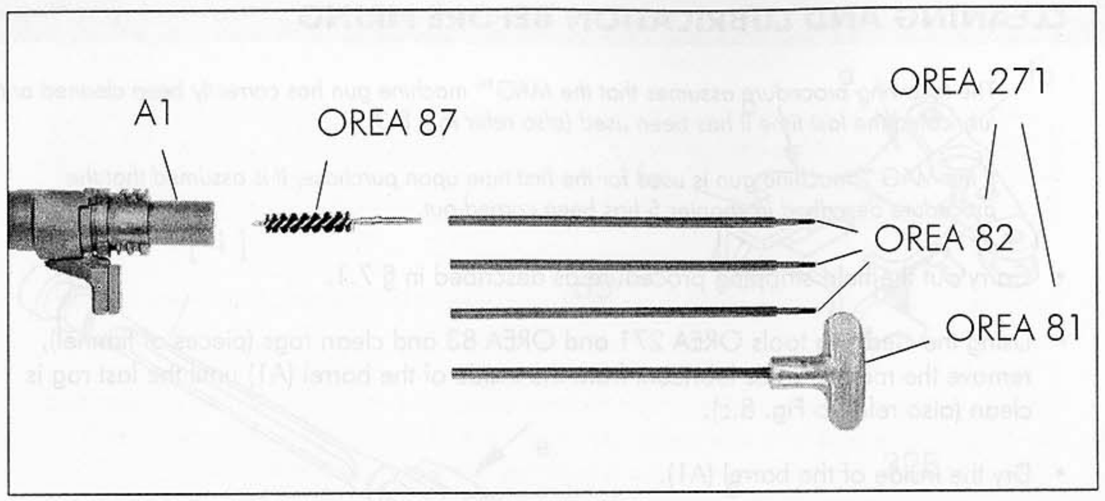


Fig. 8.b - Using the OREA 271 and the OREA 87 for a first cleaning of the barrel (A1)

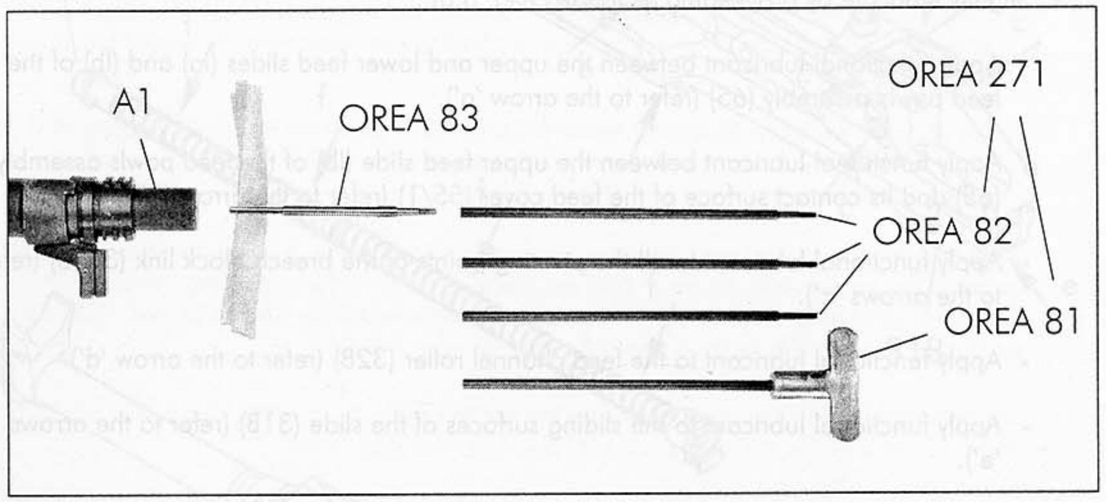


Fig. 8.c - Using the OREA 271 and the OREA 83 for the final cleaning of the barrel (A1)

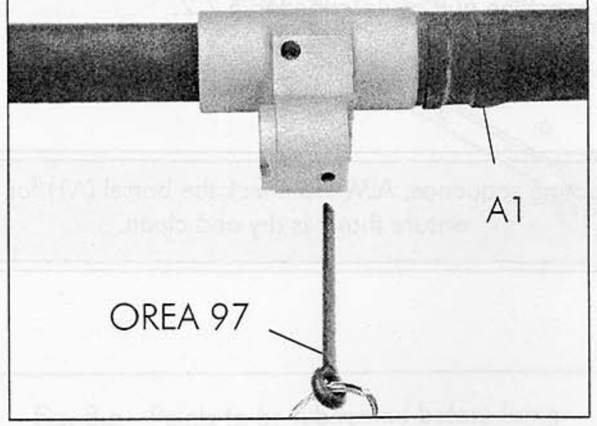


Fig. 8.d - Using the OREA 97 for the cleaning of the gas escape holes in the gas block of the barrel (A1)

8.3. CLEANING AND LUBRICATION AFTER FIRING

- Carry out the field stripping procedure as described in § 7.1.

(a) Barrel (A1)

- Using the cleaning tools OREA 271 and OREA 87 or a spray, apply solvent inside the bore and the chamber of the barrel (A1) and let the product work a few minutes (Fig. 8.b).
- Using the cleaning tools OREA 271 and OREA 87, remove as much as possible the solvent and the residues from the bore and the chamber of the barrel (A1) (Fig. 8.b).
- Using the cleaning tools OREA 271 and OREA 83 and clean rags (pieces of flannel), clean the bore and the chamber of the barrel (A1) until the last rag is clean (Fig. 8.c).
- When the barrel (A1) is clean, again use a piece of flannel, this time moistened with maintenance lubricant, to protect the bore and the chamber of the barrel until the next use.

  Please note that the bore and the chamber of the barrel (A1) should be wiped dry before shooting (also refer to § 8.2).

- If the outside of the barrel (A1) is heavily soiled, proceed as follows :
  - Using the OREA 97, clean the gas escape holes in the gas block (Fig. 8.d).
  - Using a pointed tool, and taking care not to damage the barrel (A1), remove the dirt from all the other holes, grooves, threads and recesses of the barrel.
- Clean the outside of the barrel (A1) with a rag lightly moistened with maintenance lubricant.

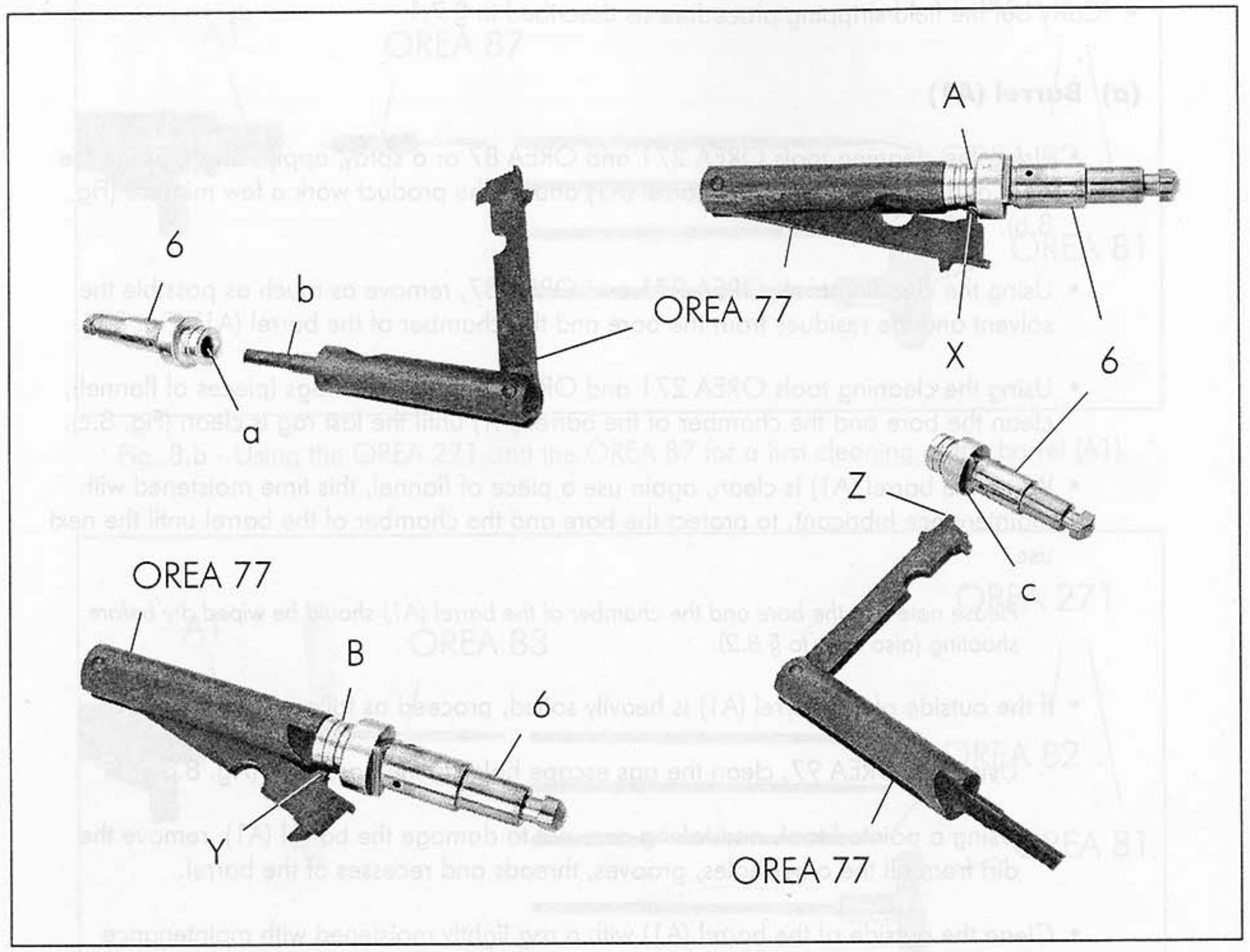


Fig. 8.e - Using the OREA 77 for cleaning the gas regulator plug (6)

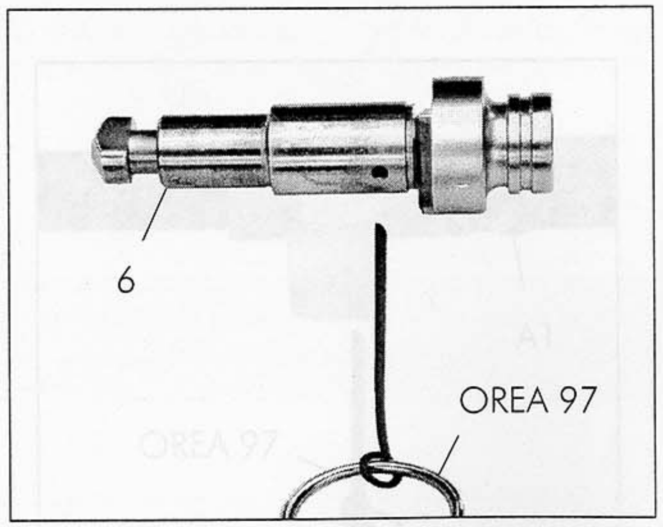


Fig. 8.f - Using the OREA 97 for cleaning the gas escape holes in the gas regulator plug (6)

8.3. CLEANING AND LUBRICATION AFTER FIRING (continued)

(b) Gas regulator plug (6)

The gas regulator plug (6), which is normally very soiled, generally requires thorough cleaning.

- Using the cleaning tool OREA 77, clean the inside (a), the grooves (A and B) and the notch (c) of the gas regulator plug (6).

  To clean the inside (a), insert, while turning it clockwise, the pointed part (b) of the cleaning tool into the rear side of the gas regulator plug until the shoulder of the cleaning tool comes into contact with the rear face of the plug (refer to the upper left part of Fig. 8.e).

  To clean the groove A, keep the pointed part (b) of the cleaning tool completely inserted into the rear side of the gas regulator plug, turn over the free arm of the cleaning tool so that the lug X enters the groove A and then, while turning the cleaning tool clockwise, clean the groove A with the lug X.

  To clean the groove B, repeat the previous step but with the free arm of the cleaning tool turned over so that the lug Y enters the groove B.

  To clean the notch (c), use the lug Z of the cleaning tool.

- Using the OREA 97, clean the gas escape holes in the gas regulator plug (6).

(c) Gas regulator assembly securing ring (22)

If necessary, use a pointed tool or a screwdriver to remove the carbon residues from the gas regulator assembly securing ring (22).

After that, clean the inside and the outside of the gas regulator assembly securing ring (22) by using a rag.

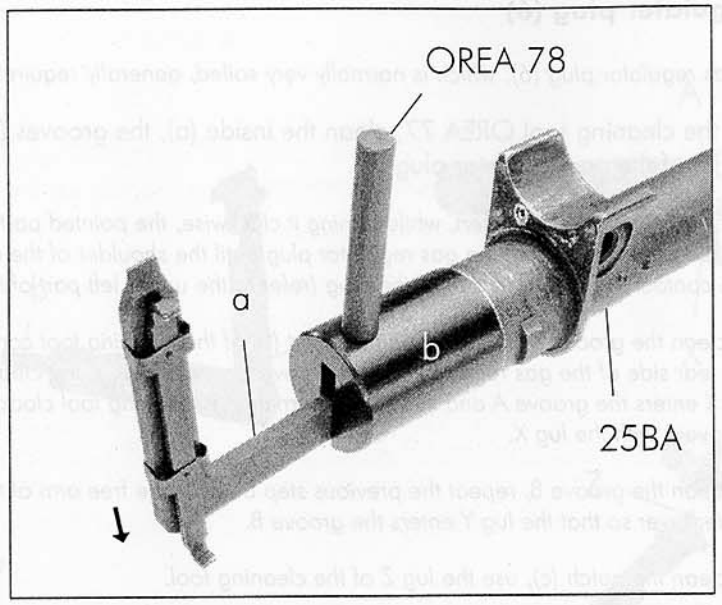


Fig. 8.g - Using the OREA 78 for cleaning the inner recess in the front part of the inside of the gas cylinder (25BA)

8.3. CLEANING AND LUBRICATION AFTER FIRING (continued)

(d) Receiver group [2]

The front part of the inside of the gas cylinder (25BA), which is normally very soiled, generally requires thorough cleaning.

- Using the cleaning tool OREA 78, clean the inner recess in the front part of the inside of the gas cylinder (25BA) by proceeding as follows (Fig. 8.g) :
  - With the scraping lever (a) perfectly aligned with the body (b) of the cleaning tool (so that the scraping part (not visible on Fig. 8.g) does not protrude), insert the longer end of the cleaning tool (also not visible on Fig. 8.g) as far as possible into the front opening of the gas cylinder.

    It is important that the cleaning tool is inserted into the gas cylinder until the shoulder of the tool comes into contact with the front side of the gas cylinder. Otherwise, the following scraping procedure could result in damage to the gas cylinder resulting in gas leakage which could cause stoppage of the gun.
  - While pulling on the scraping lever (a) (refer to the arrow on Fig. 8.g) so that the scraping part (which is now, inside the gas cylinder, aligned with the inner recess) protrudes, turn the cleaning tool clockwise to clean the inner recess.
- Using the brush OREA 93 or a spray, apply solvent inside the gas cylinder (25BA) and let the product work a few minutes.
- Using the brush OREA 93, remove as much as possible the solvent and the residues from the inside of the gas cylinder (25BA).
- Using the cleaning tools OREA 271 and OREA 83 and clean rags (pieces of flannel), clean the inside of the gas cylinder (25BA) until the last rag is clean.
- Clean the inside and the outside of the receiver (25/1) with a soft cloth.

(e) Ammunition feeding group [3]

The following procedure should only be carried out in case of apparent soiling of the ammunition feeding group [3].

- Remove the feed cover assembly (55) and the feed tray (56) as described in § 9.3.1.
- Completely disassemble the feed cover assembly (55) by carrying out the different removal and disassembly procedures given in § 9.3.
- Clean the feed cover (55/1) as well as the disassembled components with a brush and/ or a soft cloth.

  During this cleaning operation, be careful not to disengage the outer and inner pawl springs (65AE) and (65BD).
- Reassemble the feed cover assembly (55) by carrying out the different reinstallation and reassembly procedures given in § 9.3.
- Reinstall the feed cover assembly (55) and the feed tray (56) as described in § 9.3.1.

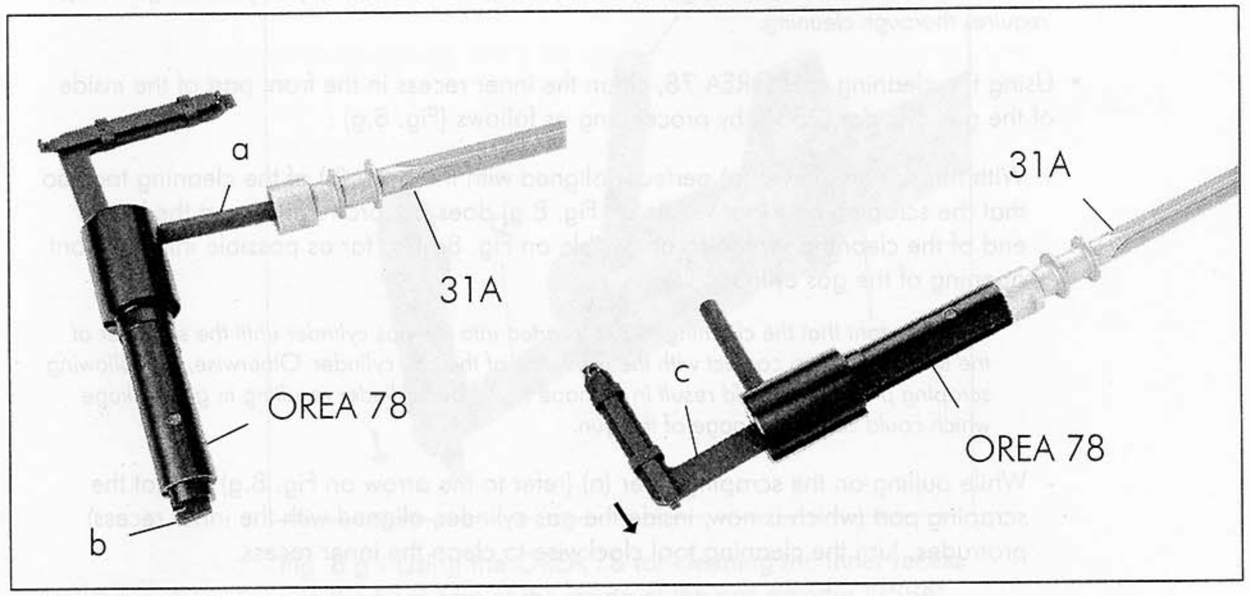


Fig. 8.h - Using the OREA 78 for cleaning the cavity at the front end of the piston (31A)

8.3. CLEANING AND LUBRICATION AFTER FIRING (continued)

(f) Moving parts group [4]

- Separate the moving parts assembly (31) into the breech block and the piston as described in § 9.4.1.
- Remove the extractor (35), its plunger (36) and its spring (37) as described in § 9.4.2.
- If necessary, use a pointed tool or a screwdriver to remove the dirt from the moving parts group [4].

  Pay special attention to the breech block body (D1), the breech block link (32EB) and the locking lever.
- Using the cleaning tool OREA 78, clean the cavity at the front end of the piston (31A) by proceeding as follows (Fig. 8.h) :
  - Using the pin (a) of the cleaning tool, scrape the conical part of the cavity at the front end of the piston.
  - Using the scraping part (b) of the cleaning tool (which is actuated by the scraping lever (c)), scrape the inner recess of the cavity at the front end of the piston.
- If, after the previous step, there are still carbon residues in the bottom of the cavity at the front end of the piston (31A), they can easily be removed by using the screwdriver part of the cleaning tool OREA 78.
- Using a cloth, remove the dirt from the extractor (35), and especially from its claw.
- Slightly lubricate the extractor plunger (36) and the extractor spring (37).
- Apply maintenance lubricant to all the pivoting points of the breech block link (32EB).
- Apply maintenance lubricant to the feed channel roller (32B).
- Reinstall the extractor (35), its plunger (36) and its spring (37) as described in § 9.4.2.
- Reassemble the moving parts assembly (31) as described in § 9.4.1.

(g) Trigger group [5]

The following procedure should only be carried out in case of apparent soiling of the trigger group [5].

- Remove the trigger frame assembly ((94) / (94/2)) as described in § 9.5.1.
- Completely disassemble the trigger frame assembly ((94) / (94/2)) by carrying out the different removal and disassembly procedures given in § 9.5.
- Clean the disassembled components.
- Reassemble the trigger frame assembly ((94) / (94/2)) by carrying out the different reinstallation and reassembly procedures given in § 9.5.
- Reinstall the trigger frame assembly ((94) / (94/2)) as described in § 9.5.1.

- Reassemble the machine gun as described in § 7.2.

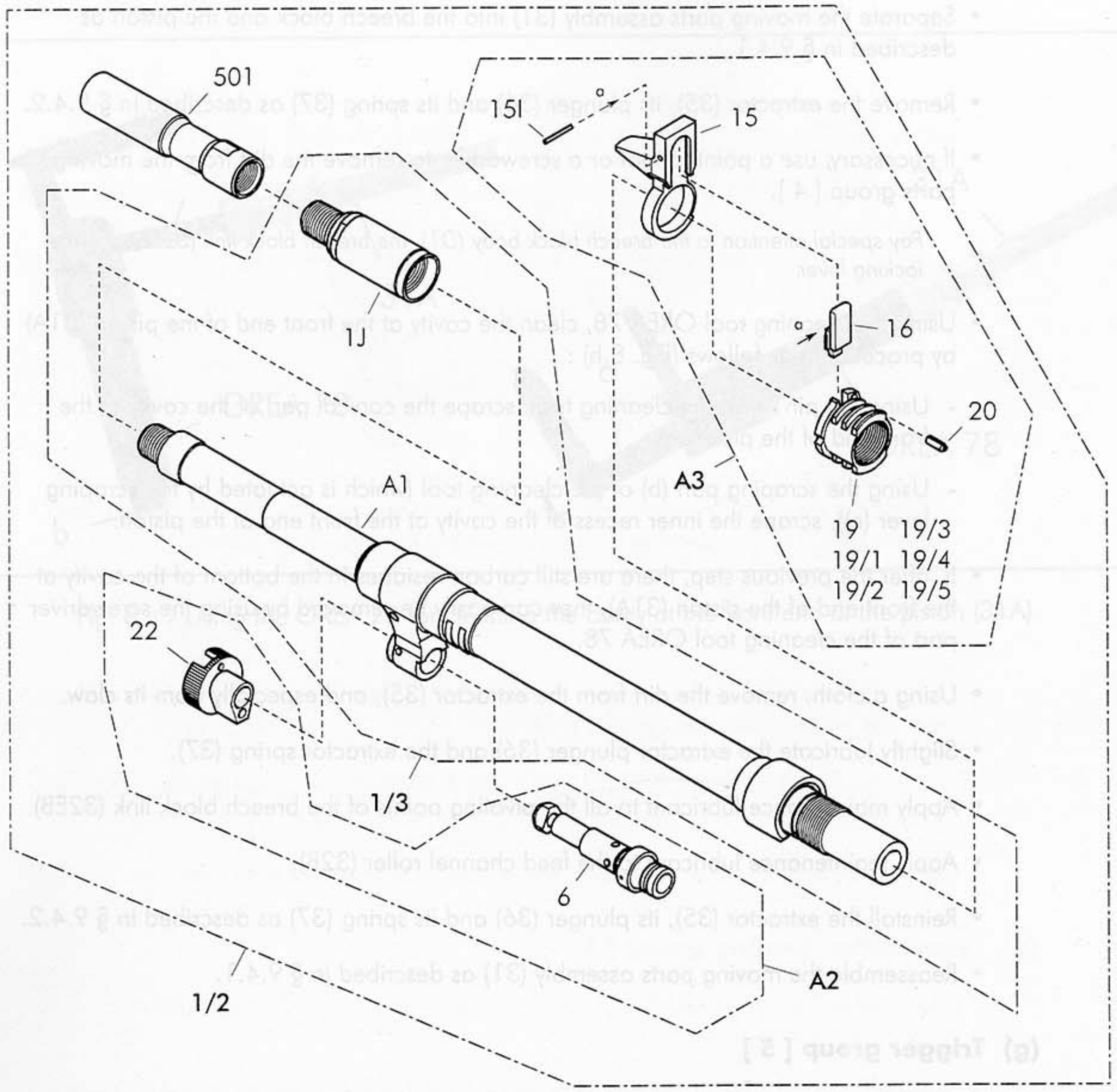


Fig. 9.1.a - Barrel group [1]

CHAPTER 9 : DISASSEMBLY AND REASSEMBLY

Before any intervention on the MAG™ machine gun, ensure to be familiar with the safety information given in chapter 4 of this Maintenance Manual.

9.1. BARREL GROUP [1] (Fig. 9.1.a)

9.1.1. Removal and reinstallation of the flash-hider (501) and the barrel extension (1J)

- Remove the barrel group [1] as described for 'field stripping' in § 7.1.

NOTE : In order to facilitate the following disassembling (and reassembling) procedure, the barrel group [1] can be fixed into a vice.

When fixing the barrel group [1] into a vice, fix it by the rear part of the gas block of the barrel (A1) and use a rag to avoid scratches.

- Using the OREA 2046 and taking into account that the threads are left-handed, unscrew the flash-hider (501) and the barrel extension (1J) from the barrel (A1) (Fig. 9.1.b).

To reassemble, follow the above steps in reverse order taking into account that a torque of 13 daN should be applied when tightening the flash-hider (501).

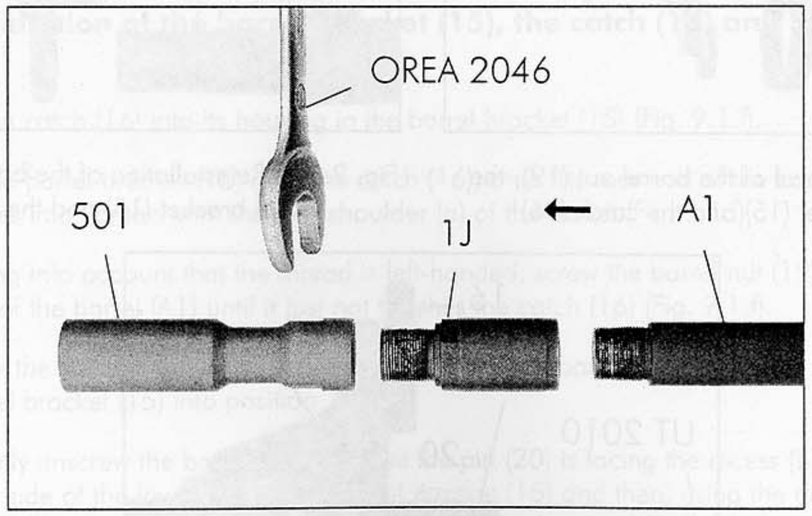


Fig. 9.1.b - Removal of the flash-hider (501) and the barrel extension (1J)

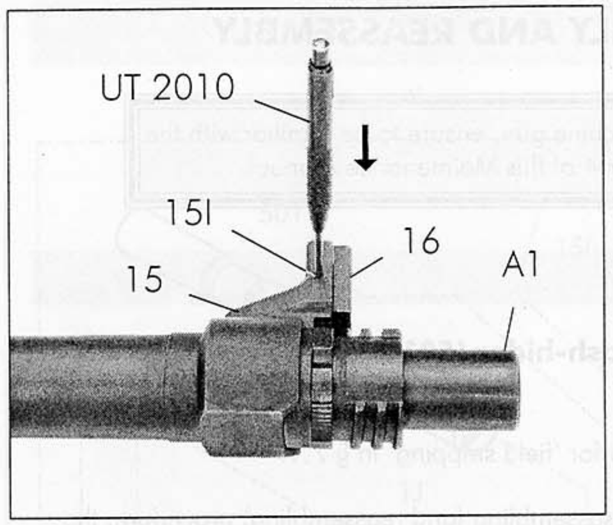


Fig. 9.1.c - Removal of the pin (15I)

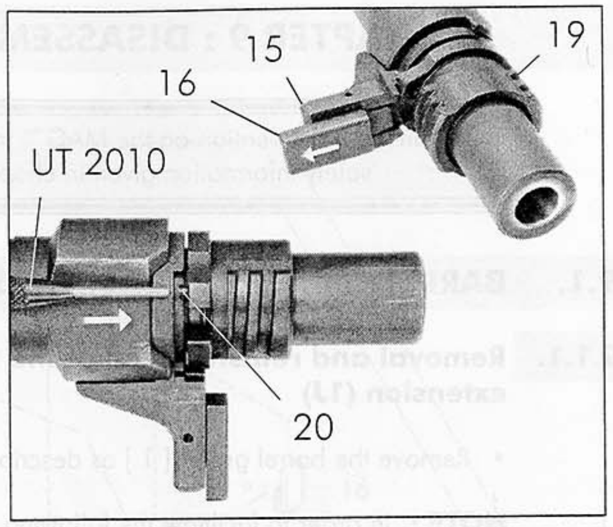


Fig. 9.1.d - Driving the pin (20) rearwards until it is flush with the front side of the barrel nut (19)

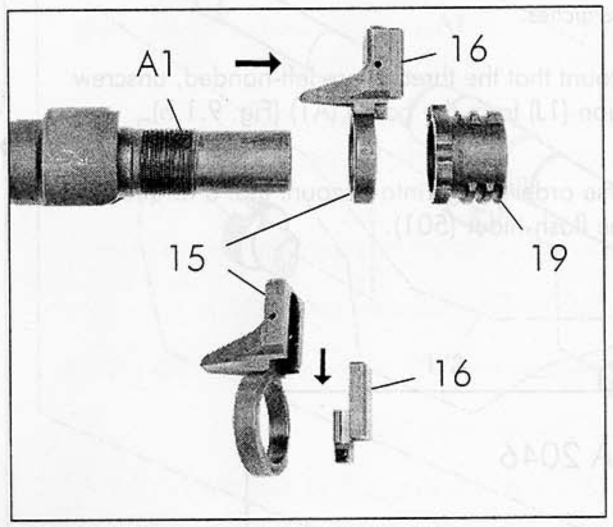


Fig. 9.1.e - Removal of the barrel nut (19), the barrel bracket (15) and the catch (16)

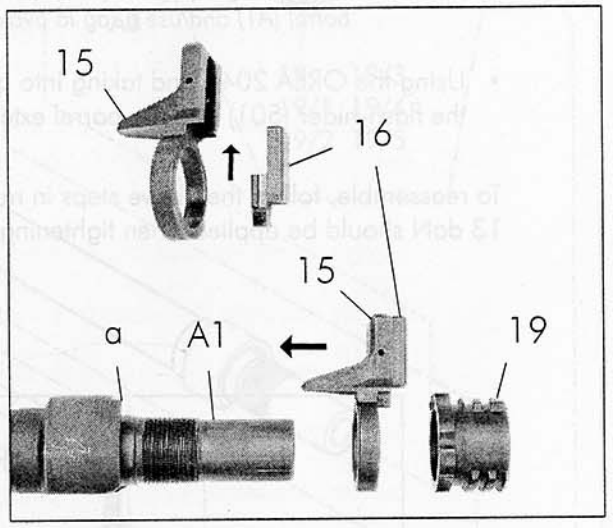


Fig. 9.1.f - Reinstallation of the barrel nut (19), the barrel bracket (15) and the catch (16)

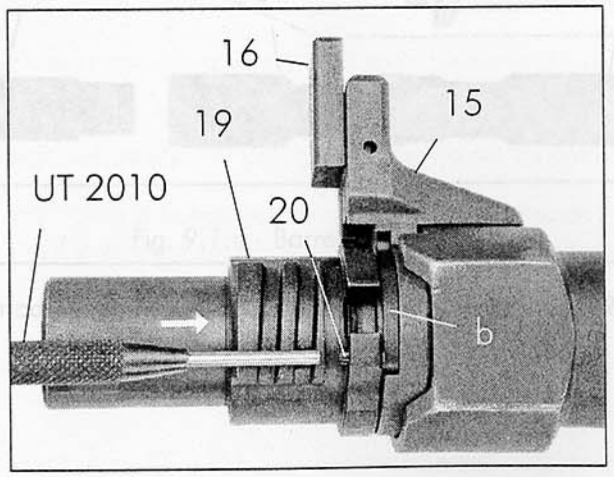


Fig. 9.1.g - Driving the pin (20) forwards until it is flush with the rear side of the barrel nut (19)

9.1. BARREL GROUP [1] (continued)

9.1.2. Removal of the barrel bracket (15), the catch (16) and the barrel nut (19)

- Remove the barrel group [1] as described for 'field stripping' in § 7.1.

NOTE : In order to facilitate the following disassembling (and reassembling) procedure, the barrel group [1] can be fixed into a vice.

When fixing the barrel group [1] into a vice, fix it by the rear part of the gas block of the barrel (A1) and use a rag to avoid scratches.

- Using the drift punch UT 2010 and a hammer, drive out the pin (15I) (Fig. 9.1.c).

NOTE : If the pin (15I) is removed, it must always be replaced by a new one !

- After having withdrawn the drift punch UT 2010 and while disengaging the catch (16) from the barrel nut (19), position both the barrel bracket (15) and the barrel nut so that the pin (20) can be driven rearwards by using a drift punch (Fig. 9.1.d).
- Using the drift punch UT 2010 and a hammer from the front side, drive the pin (20) slightly rearwards until it is flush with the front side of its hole in the barrel nut (19) (Fig. 9.1.d).

NOTE : If the pin (20) is removed, it must always be replaced by a new one !

- Taking into account that the thread is left-handed, manually unscrew the barrel nut (19) from the barrel (A1) (Fig. 9.1.e).
- Slide the barrel bracket (15) off the rear end of the barrel (A1) (Fig. 9.1.e).
- Take the catch (16) out of its housing in the barrel bracket (15) (Fig. 9.1.e).

9.1.3. Reinstallation of the barrel bracket (15), the catch (16) and the barrel nut (19)

- Fit the catch (16) into its housing in the barrel bracket (15) (Fig. 9.1.f).
- Fit the barrel bracket (15) (with the catch (16)) onto the rear end of the barrel (A1) until it comes into contact with the rear shoulder (a) of the barrel (Fig. 9.1.f).
- Taking into account that the thread is left-handed, screw the barrel nut (19) onto the rear end of the barrel (A1) until it just not touches the catch (16) (Fig. 9.1.f).
- Raise the catch (16) and then continue screwing the barrel nut (19) until it secures the barrel bracket (15) into position.
- Slightly unscrew the barrel nut (19) until the pin (20) is facing the recess (b) provided in the right side of the lower ring of the barrel bracket (15) and then, using the drift punch UT 2010 and a hammer from the rear side, drive the pin (20) slightly forwards until its rear extremity is flush with the rear side of its hole in the barrel nut (19) (Fig. 9.1.g).

As a result, the front extremity of the pin (20) enters the recess (b).

It is very important that the front extremity of the pin (20) does not come into contact with the bottom of the recess (b) in order to allow the barrel bracket (15) to rotate freely when the catch (16) is disengaged and raised.

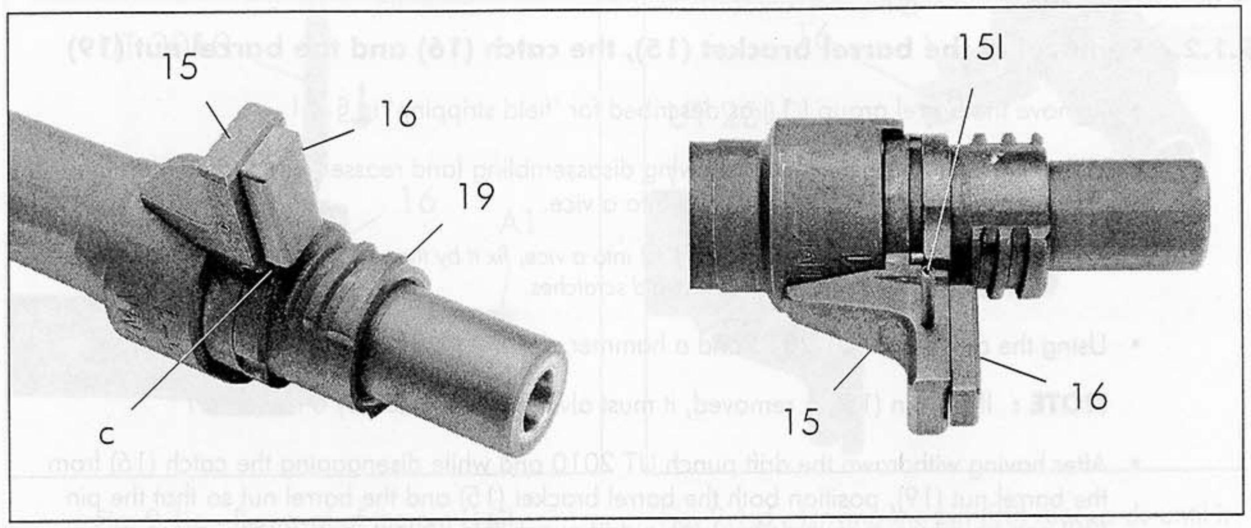


Fig. 9.1.h - Correct installation of the catch (16) and securing it by means of the pin (15l)

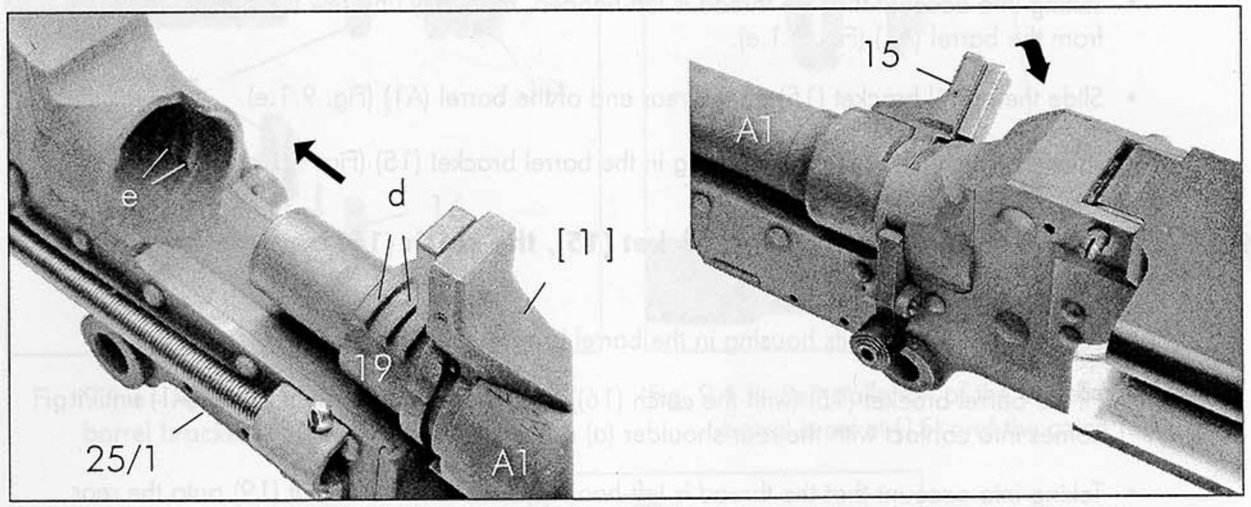


Fig. 9.1.i - Reinstallation of the barrel group [1] and locking the barrel (A1) into position

9.1. BARREL GROUP [1] (continued)

9.1.3. Reinstallation of the barrel bracket (15), the catch (16) and the barrel nut (19) (continued)

- Slightly unscrew the barrel nut (19) until its notch (c) is positioned under the raised catch (16) (left part of Fig. 9.1.h).
- Release the catch (16) and ensure that it correctly engages the notch (c) in the barrel nut (19) (left part of Fig. 9.1.h).
- Align the notch in the catch (16) with the corresponding holes in the barrel bracket (15) and then manually insert the pin (15l) into the aligned holes (right part of Fig. 9.1.h).
- Using a hammer, drive the pin (15l) fully home and ensure that it does not protrude from the left or right side.
- Check, and if necessary correct, the locking of the barrel (A1) onto the receiver (25/1) by proceeding as follows :
  - Place the barrel group [1] onto the receiver (25/1) (Fig. 9.1.i).
  - Ensure that the barrel group [1] is fully engaged in the receiver (25/1) (Fig. 9.1.i).

    When the barrel group [1] is fully engaged in the receiver (25/1), the outer guides (d) of the barrel nut (19) correctly face the corresponding inner guides (e) in the frame of the receiver.
  - Lock the barrel (A1) into position by turning the barrel bracket (15) as far as possible downwards towards the right side and count the number of clicks which can be heard during this operation (Fig. 9.1.i).

    During this operation, the outer guides (d) of the barrel nut (19) engage the corresponding inner guides (e) in the frame of the receiver (25/1).
  - If the number of clicks lays between 2 and 5, the locking of the barrel (A1) onto the receiver (25/1) is correct and the reinstallation procedure is terminated.

    If the number of clicks exceeds 5, the locking of the barrel (A1) is incorrect and should be corrected by replacing the presently installed barrel nut (19) by a spare barrel nut.

    If, for any reason, the locking of the barrel (A1) cannot be corrected, the machine gun can still be used as long as the number of clicks lays between 6 and 8. If the number of clicks is 9 or more, the locking of the barrel should absolutely be corrected.

    Five different spare barrel nuts (19/1 to 19/5 (recognizable by an engraved number)) are available and, in increasing numerical order, each spare barrel nut will reduce the number of clicks by 2.

    In order to obtain an optimal and prolonged correction of the locking of the barrel (A1), it is recommended to try to find the spare barrel nut which results in a number of clicks laying between 2 and 4.

    After having installed a spare barrel nut, repeat the checking (and correction) procedure described in this step until a correct locking of the barrel (A1) is obtained.

An incorrect locking of the barrel (A1) could result in an increase of the headspace.

After any intervention on the barrel nut (19), carry out the checking and gauging procedure of the headspace given in § 10.3.

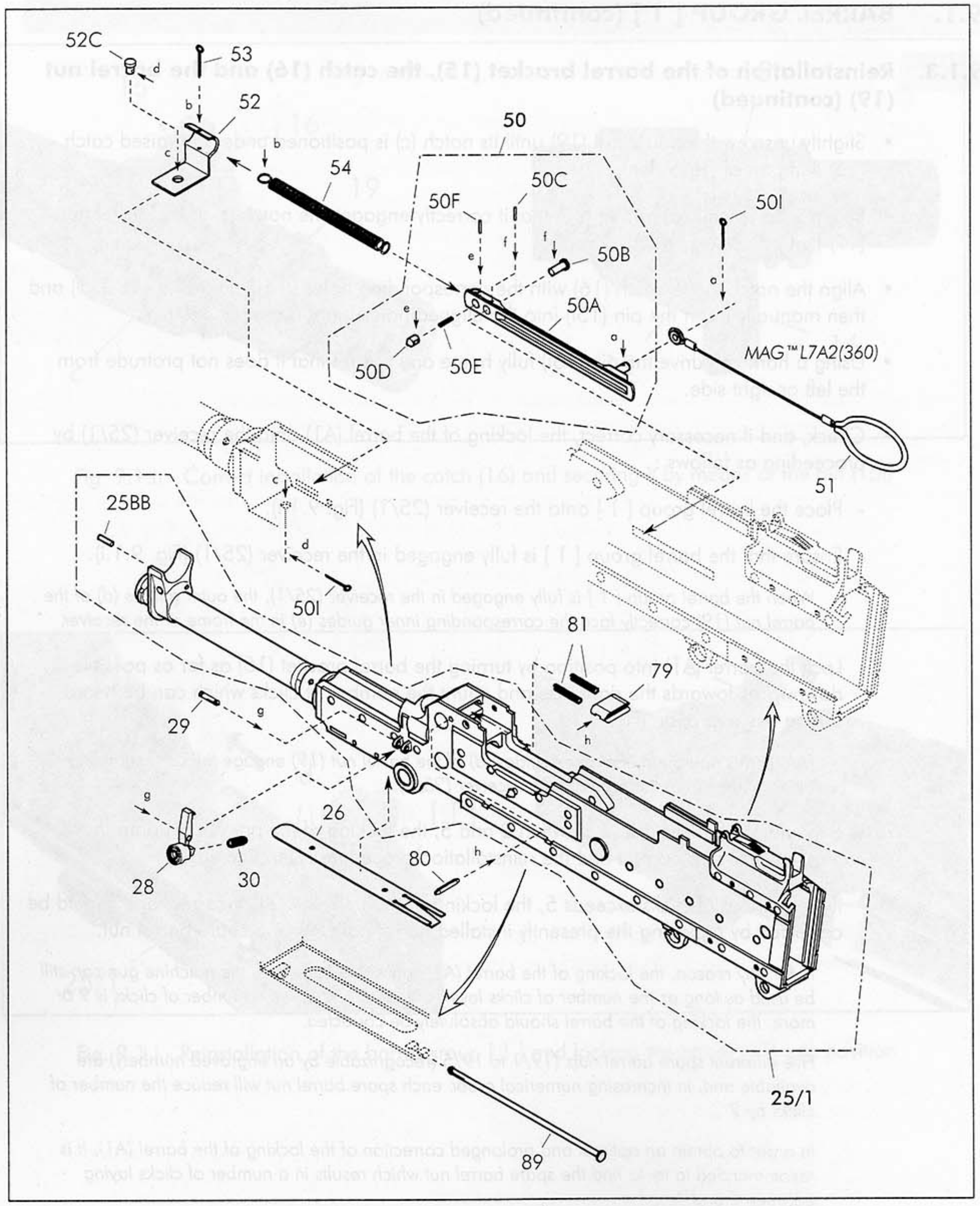


Fig. 9.2.a - Receiver group [2]

Although the gas cylinder (25BA), the pin (25C), the knob (25GM), the front mounting bush and its components (25I, 25J and 25K) as well as most of the rivets (25M, 25P, 25Q, 25QA, 25R, 25S, 25T, 25V, 25W, 25Y and 25Z) are available as spare parts, it is not recommended to intervene on them.

If such interventions are nevertheless required, they may only be carried out by qualified technicians using the instructions and the tools which are only available on **special request**.

9.2. RECEIVER GROUP [2] (Fig. 9.2.a)

9.2.1. Removal and reinstallation of the pin (25BB)

NOTE : As explained in § 2.2.2.2 of this Maintenance Manual, the pin (25BB) has no particular function.

- Remove the barrel group [1] as described for 'field stripping' in § 7.1.
- Using the drift punch UT 2013 and a hammer from the rear side, drive out the pin (25BB) (Fig. 9.2.b).

To reassemble, follow the above steps in reverse order.

9.2.2. Removal and reinstallation of the ejection cover hinge pin (89)

NOTE : As explained in § 2.2.2.1 of this Maintenance Manual, the ejection cover hinge pin (89) has no particular function.

- Lay the machine gun onto its right side.
- Using the screwdriver UT 1903, withdraw the ejection cover hinge pin (89) (Fig. 9.2.c).

To reassemble, follow the above steps in reverse order.

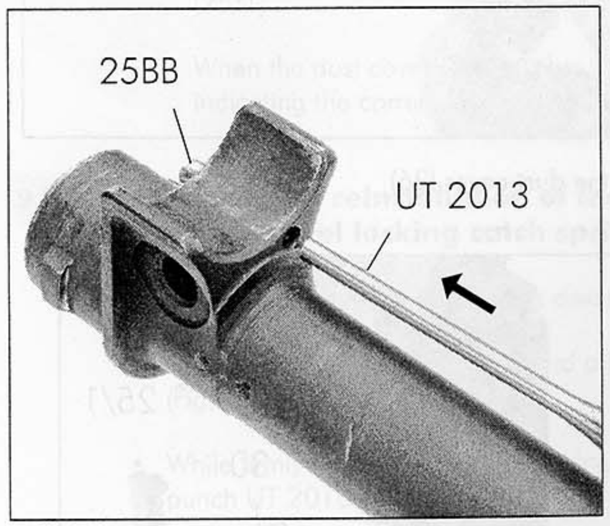


Fig. 9.2.b - Removal of the pin (25BB)

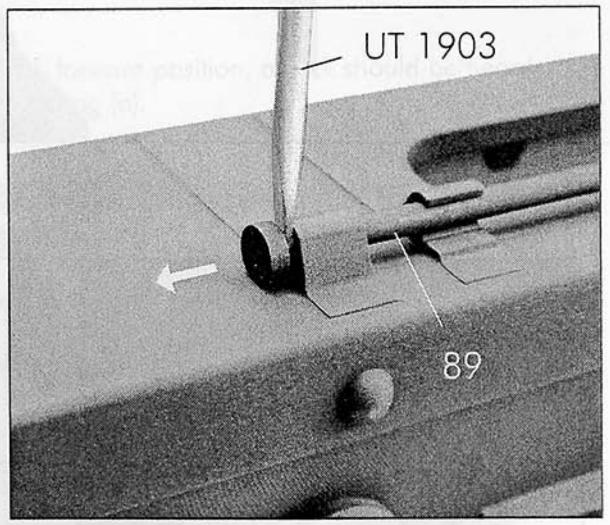


Fig. 9.2.c - Removal of the ejection cover hinge pin (89)

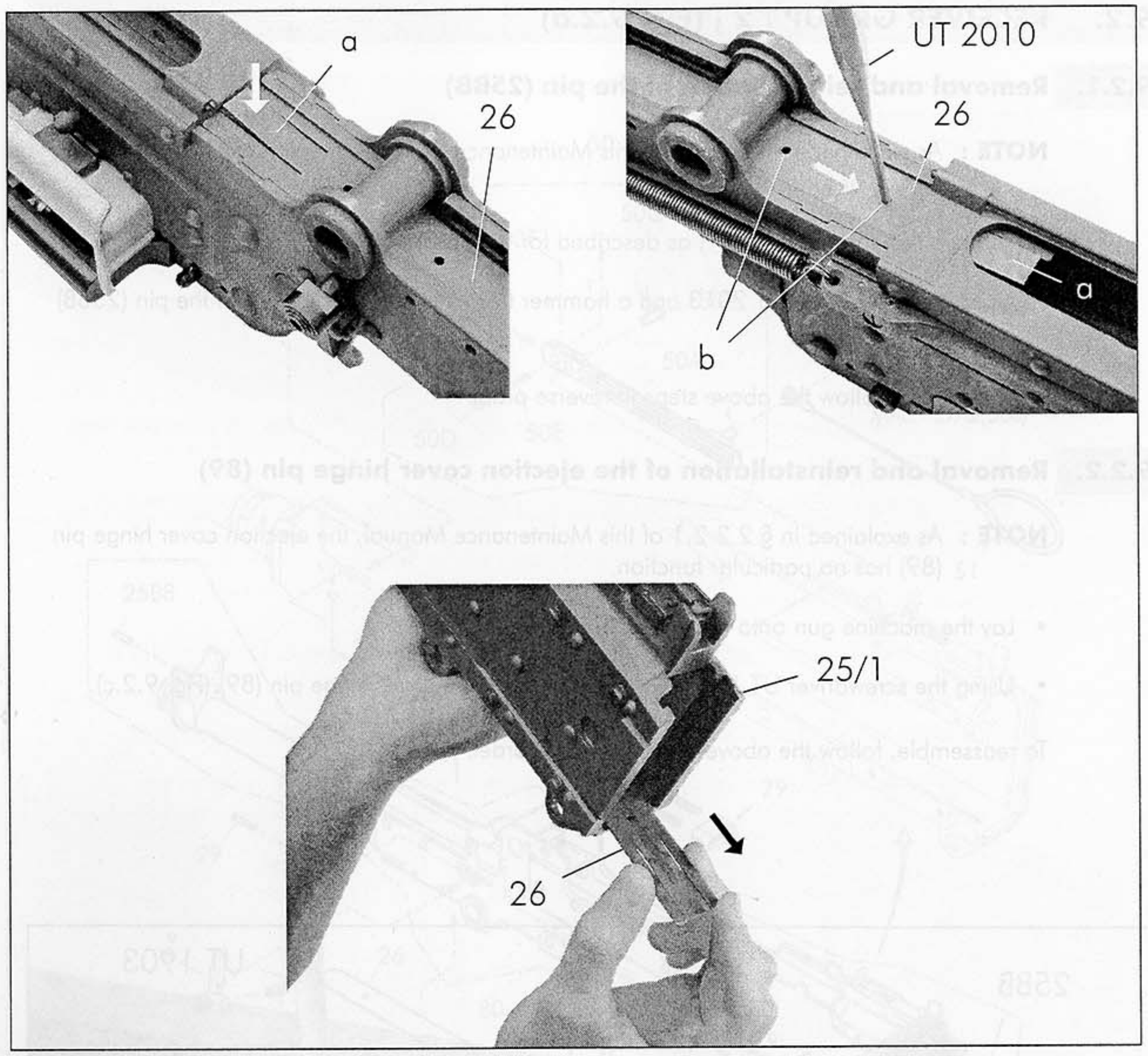


Fig. 9.2.d - Removal of the dust cover (26)

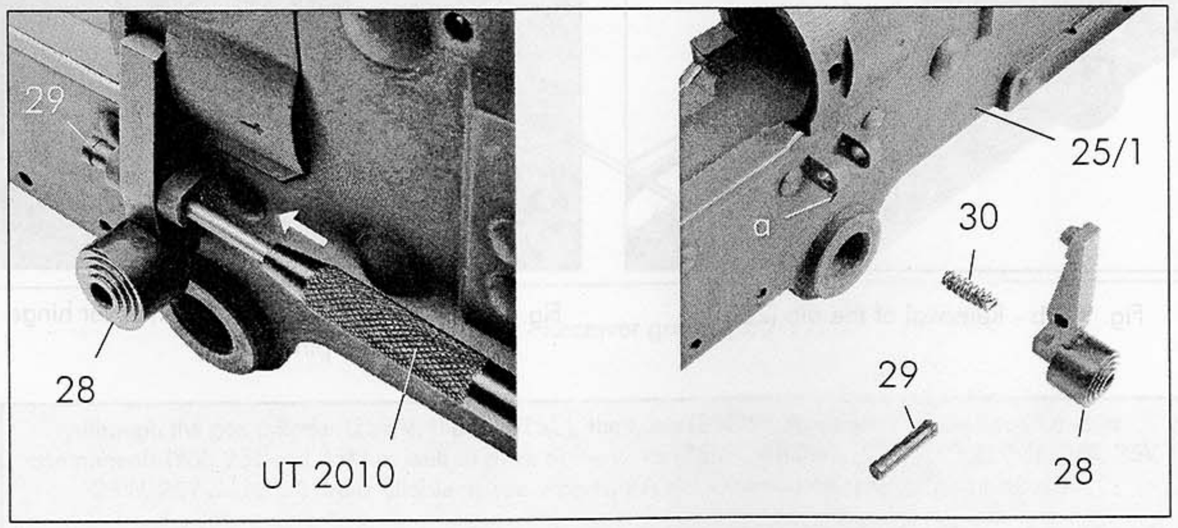


Fig. 9.2.e - Removal of the barrel locking catch (28) and its spring (30)

9.2. RECEIVER GROUP [2] (continued)

9.2.3. Removal and reinstallation of the dust cover (26)

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.
- Remove the return spring assembly (45) and the moving parts assembly (31) as described for 'field stripping' in § 7.1.
- Remove the trigger frame assembly ((94) / (94/2)) as described in § 9.5.1.
- In order to facilitate the following disassembling (and reassembling) procedure, it is also recommended to remove the barrel group [1] as described for 'field stripping' in § 7.1.
- Turn the machine gun upside down and then place it onto a solid surface.
- Underneath the machine gun, push the plate spring (a) of the dust cover (26) inwards and hold it in that position (upper left part of Fig. 9.2.d).
- Using the drift punch UT 2010 into the holes (b) of the dust cover (26), move the dust cover as far as possible towards the rear side (upper right part of Fig. 9.2.d).

  During this operation, the plate spring (a) and then the major part of the dust cover (26) will disappear inside the receiver (25/1).

- Pull the dust cover (26) out of the rear side of the receiver (25/1) (lower part of Fig. 9.2.d).

To reinstall, follow the above steps in reverse order, taking into account the following points :

- Ensure that the dust cover (26) fits correctly into its mounting grooves inside the receiver (25/1).
- When the dust cover (26) reaches its final, forward position, a click should be heard indicating the correct locking of its plate spring (a).

9.2.4. Removal and reinstallation of the barrel locking catch (28), the pin (29) and the barrel locking catch spring (30)

- Remove the barrel group [1] as described for 'field stripping' in § 7.1.
- Using the drift punch UT 2010 and a hammer from the rear side, drive out the pin (29) (Fig. 9.2.e).
- While firmly holding the barrel locking catch (28) in position with a finger, withdraw the drift punch UT 2010.

  Take into account that the barrel locking catch (28) is subjected to the force of its spring (30).

- Remove the barrel locking catch (28) together with its spring (30).

To reassemble, follow the above steps in reverse order, taking into account that one of the extremities of the barrel locking catch spring (30) should correctly engage its housing in the barrel locking catch (28) while the other extremity of the spring should correctly enter into the recess (a) provided in the left side of the receiver (25/1).

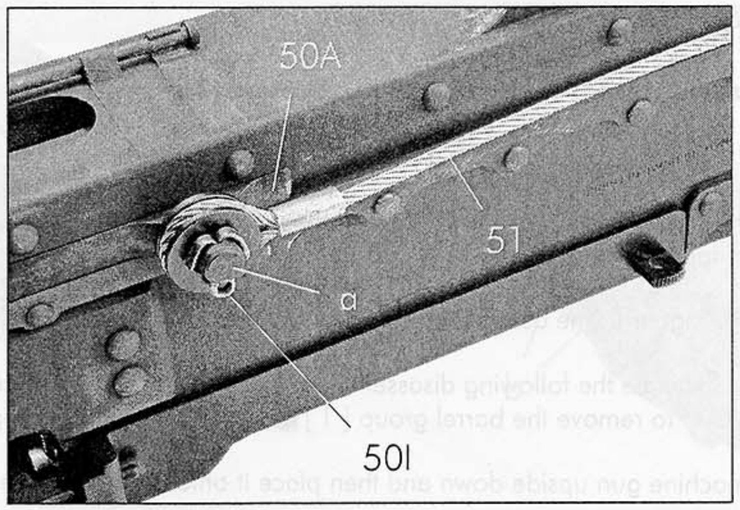


Fig. 9.2.f - Removal of the cocking cable (51) *(only MAG™L7A2(360))*

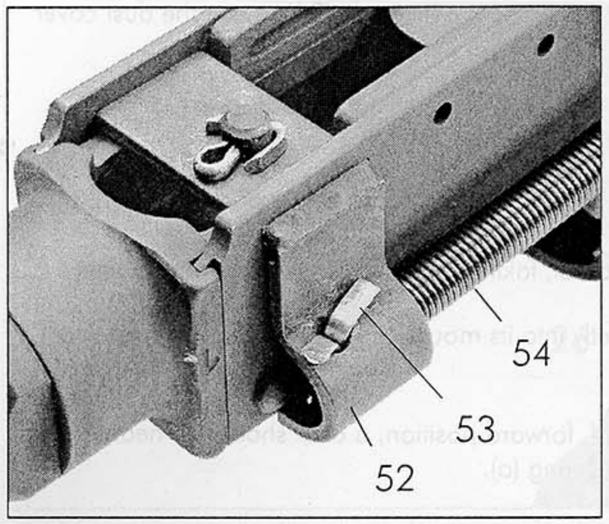


Fig. 9.2.g - Releasing the front extremity of the cocking handle spring (54)

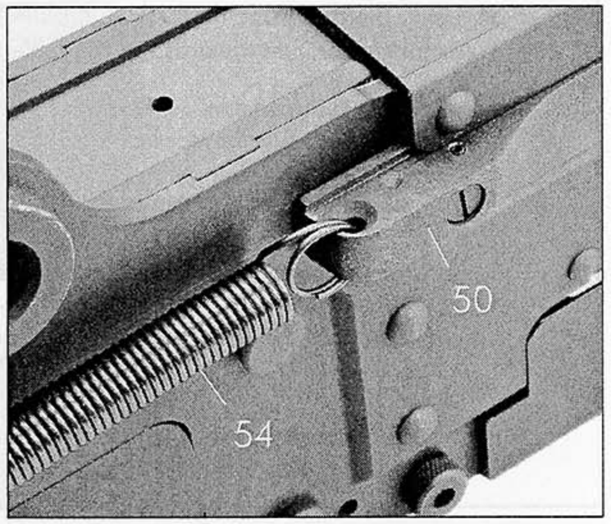


Fig. 9.2.h - Releasing the rear extremity of the cocking handle spring (54)

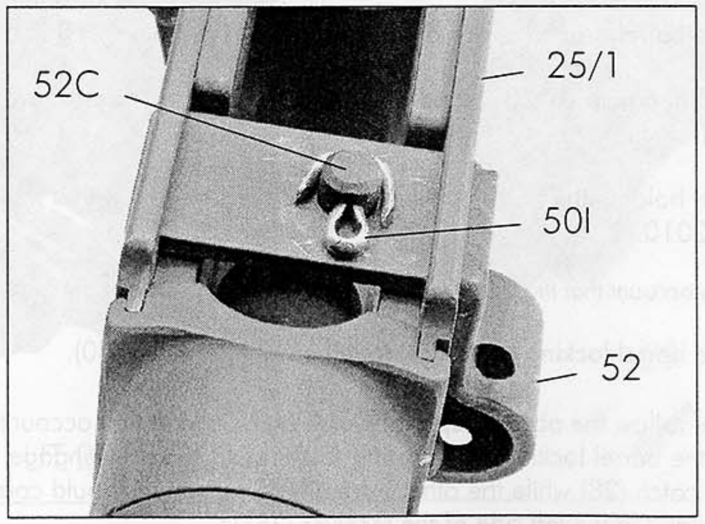


Fig. 9.2.i - Removal of the protective plate (52)

9.2. RECEIVER GROUP [2] (continued)

9.2.5. Removal and reinstallation of the cocking cable (51) *(only MAG™L7A2(360))*

NOTE : In case of the MAG™L7A2(310), the same pin (50I) is used fix the cocking cable provided in the weapon system to the rear pin of the cocking handle body (50A).

- Using the pliers UT 1810, unbend and then remove the pin (50I) which secures the front end of the cocking cable (51) to the rear pin (a) of the cocking handle body (50A) (Fig. 9.2.f).
- Release the front end of the cocking cable (51) from the rear pin (a) of the cocking handle body (50A) and then remove the cocking cable by pulling it out of the opening of its support (98).

To reassemble, follow the above steps in reverse order.

9.2.6. Removal and reinstallation of the cocking handle spring (54)

- Using the pliers UT 1810, unbend and then remove the pin (53) which secures the front extremity of the cocking handle spring (54) to the protective plate (52) (Fig. 9.2.g).
- Using the pliers UT 1810, release the rear extremity of the cocking handle spring (54) from the front hole of the cocking handle assembly (50) (Fig. 9.2.h).

To reassemble, follow the above steps in reverse order.

9.2.7. Removal and reinstallation of the protective plate (52)

- Remove the dust cover (26) as described in § 9.2.3.
- Release the front extremity of the cocking handle spring (54) from the protective plate (52) as described in § 9.2.6.
- Using the pliers UT 1810, unbend and then remove the pin (50I) which secures the lug (52C) and then remove the lug (Fig. 9.2.i).
- Pull the protective plate (52) out of its groove in the lower right part of the receiver (25/1) (Fig. 9.2.i).

To reassemble, follow the above steps in reverse order taking into account that the protective plate (52) should be oriented correctly.

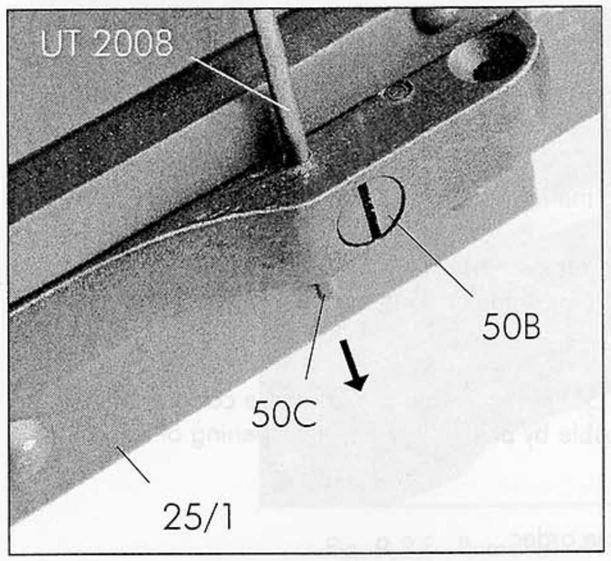


Fig. 9.2.j - Removal of the pin (50C)

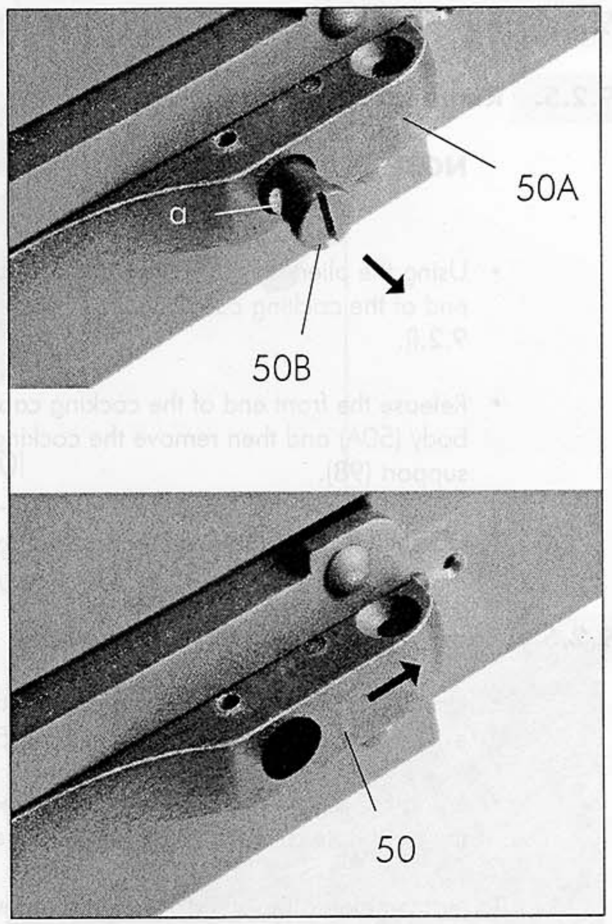


Fig. 9.2.k - Removal of the cocking pin (50B) and the cocking handle assembly (50)

9.2. RECEIVER GROUP [2] (continued)

9.2.8. Removal and reinstallation of the cocking handle assembly (50)

- Release the cocking cable from the cocking handle assembly (50) as described in § 9.2.5.
- Release the rear extremity of the cocking handle spring (54) from the cocking handle assembly (50) as described in § 9.2.6.
- Remove the buffer group [6] as described for 'field stripping' in § 7.1.
- Remove the return spring assembly (45) and the moving parts assembly (31) as described for 'field stripping' in § 7.1.
- Open the ammunition feeding group [3] by using the feed cover catches (74).
- Using the drift punch UT 2008 and a hammer, drive out the pin (50C) (Fig. 9.2.j).

NOTE : Once it has been removed, the pin (50C) must always be replaced by a new one !

- Withdraw the drift punch UT 2008 and then, from the inside of the receiver (25/1), push the cocking pin (50B) out of the cocking handle body (50A) (Fig. 9.2.k).
- The cocking handle assembly (50) can now be slid forwards out of its guide rails.

To reassemble, and as long as the cocking pin (50B) should not be replaced by a new one, follow the above steps in reverse order, taking into account that the notch (a) in the cocking pin should be facing rearwards in order to allow the reinstallation of the pin (50C) (if necessary, use the drift punch UT 2008 as a guide). After having reinstalled the pin (50C), ensure that it does not protrude from the upper or lower side of the cocking handle body (50A).

If the cocking pin (50B) should be replaced by a new one, refer to § 9.2.9.

9.2.9. Replacement of the cocking pin (50B)

- Remove the cocking handle assembly (50) as described in § 9.2.8.
- Take a new cocking pin (50B) and then fit it, from the right side, into its hole in the cocking handle body (50A).
- Insert this assembly in the OREA 14 so that the head of the new cocking pin (50B) is in the alignment of the screw of the OREA 14.
- Tighten the screw of the OREA 14 so that the new cocking pin (50B) and the cocking handle body (50A) are firmly fixed into position.

Please note that, if the cocking handle retaining plunger (50D) has not been removed, the plunger will be pushed all the way in the cocking handle body (50A).

- Using the drill UT 2411 through the hole for the pin (50C), drill into the new cocking pin (50B).

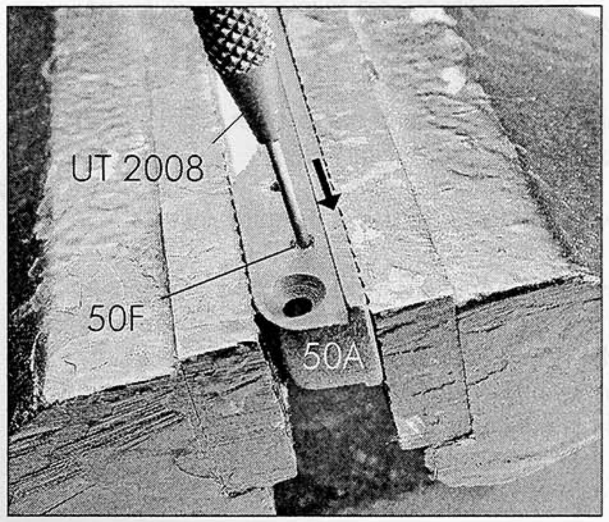


Fig. 9.2.l - Removal of the pin (50F)

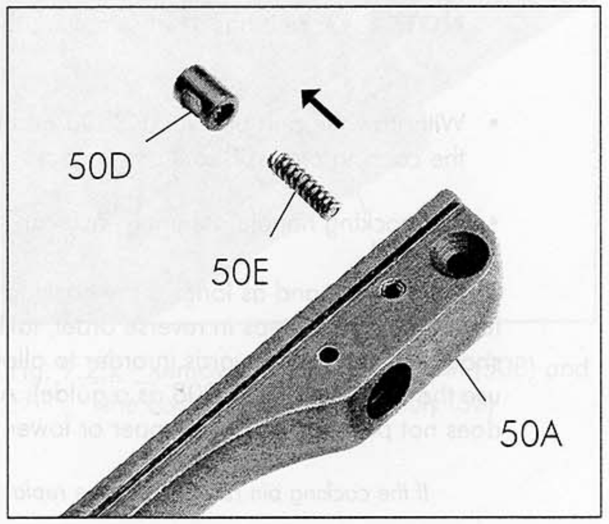


Fig. 9.2.m - Removal of the cocking handle retaining plunger (50D) and its spring (50E)

9.2. RECEIVER GROUP [2] (continued)

9.2.9. Replacement of the cocking pin (50B) (continued)

- Loosen the screw of the OREA 14 and then take the cocking handle body (50A) (with the drilled cocking pin (50B)) out of the OREA 14.
- Take the drilled cocking pin (50B) out of the cocking handle body (50A) and then remove any drilling residues.
- Reassemble the cocking handle assembly (50) by following the steps of § 9.2.8 in reverse order.

9.2.10. Removal and reinstallation of the cocking handle retaining plunger (50D) and its spring (50E)

- Remove the cocking handle assembly (50) as described in § 9.2.8.

NOTE : In order to facilitate the following disassembling (and reassembling) procedure, the cocking handle assembly (50) can be fixed into a vice.

When fixing the cocking handle assembly (50) into a vice, use a rag to avoid scratches.

- Using the drift punch UT 2008 and a hammer, drive out the pin (50F) (Fig. 9.2.l).

  Take into account that the extremities of the pin (50F) have been riveted : if necessary, use a drill to eliminate the riveted end at the side where the drift punch UT 2008 will be used.

  NOTE : Once it has been removed, the pin (50F) must always be replaced by a new one !

- Withdraw the drift punch UT 2008 and then take the cocking handle assembly (50) out of the vice.

  Take into account that the cocking handle retaining plunger (50D) is subjected to the force of its spring (50E).

- Remove the cocking handle retaining plunger (50D) and its spring (50E) (Fig. 9.2.m).

To reassemble, follow the above steps in reverse order, taking into account the following points :

- Ensure that the cocking handle retaining plunger (50D) and its spring (50E) are perfectly clean and then slightly lubricate them.
- The cocking handle retaining plunger spring (50E) should correctly fit into its housing in the plunger (50D).
- The notch in the cocking handle retaining plunger (50D) should correctly be aligned with the hole for the pin (50F) in the cocking handle body (50A) : if necessary, use the drift punch UT 2008 as a guide.
- After its reinstallation, the pin (50F) should be secured by riveting its extremities. After this operation, ensure that no part of the pin protrudes from the upper or lower side of the cocking handle body (50A).

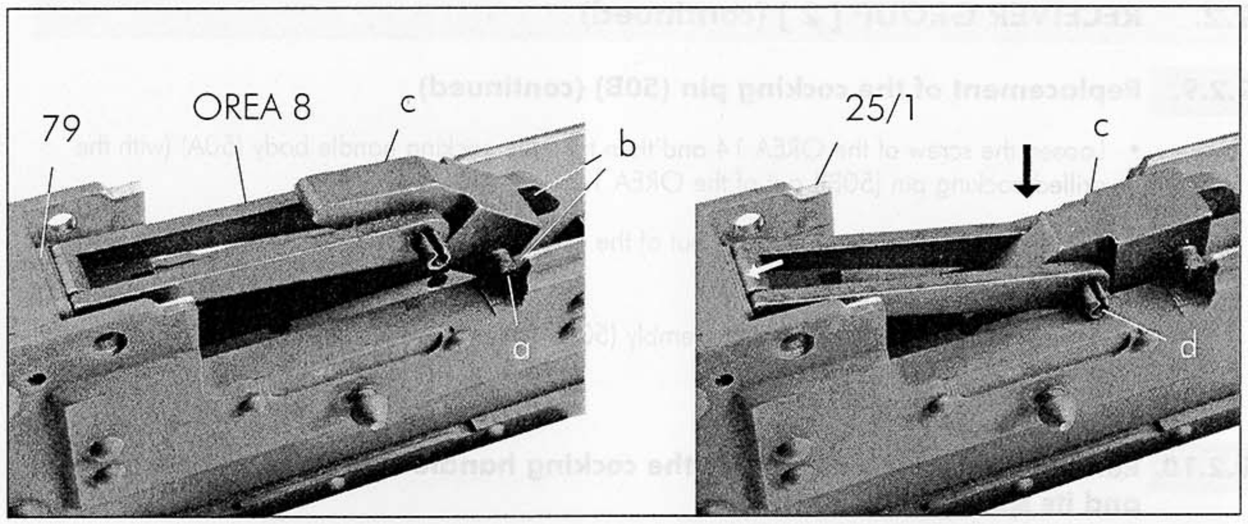


Fig. 9.2.n - Installation of the OREA 8

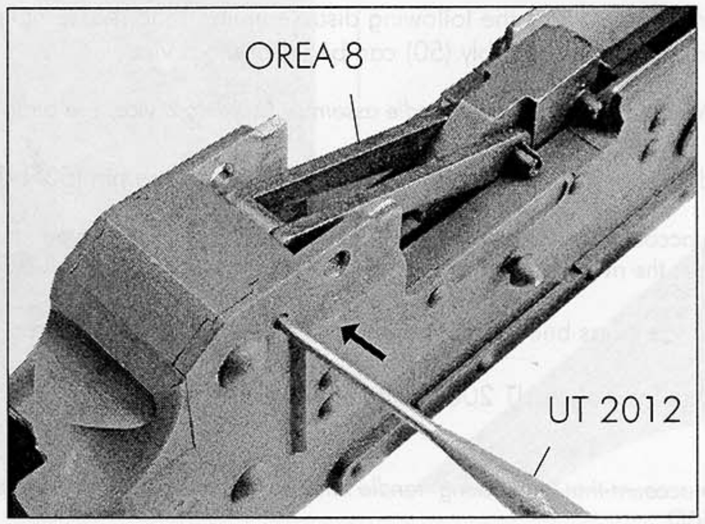


Fig. 9.2.o - Removal of the pin (80)

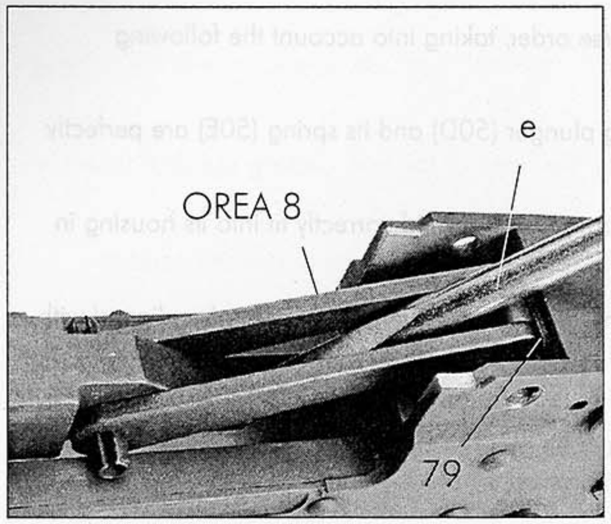


Fig. 9.2.p - Disengaging the OREA 8

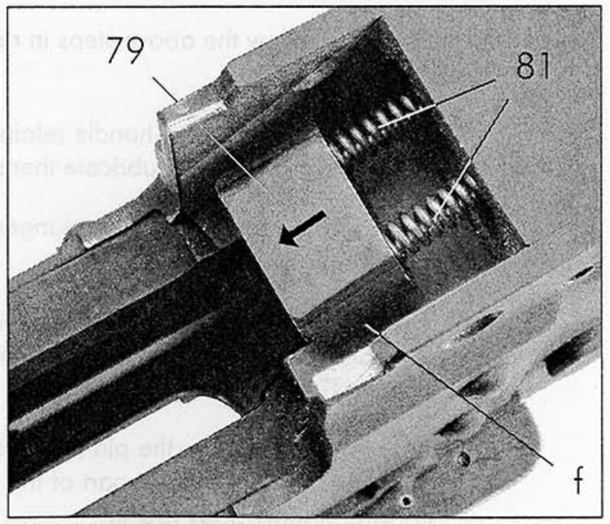


Fig. 9.2.q - Removal of the cover stop pawl (79) and its springs (81)

9.2. RECEIVER GROUP [2] (continued)

9.2.11. Removal and reinstallation of the cover stop pawl (79) and its springs (81)

- Remove the feed cover assembly (55) and the feed tray (56) as described in § 9.3.1.
- Fit the OREA 8 into the opening for the feed tray (56) (left part of Fig. 9.2.n).

  The rear axis (a) of the OREA 8 should rest onto the left and right inner guides (b) of the receiver (25/1) while the (front) extremity of the longer part of the OREA 8 should engage the recess in the rear side of the cover stop pawl (79).

- Push down on the central protruding part (c) of the OREA 8 so that the tool locks, by spring force, into its lower position (right part of Fig. 9.2.n).

  The downward movement of the central part of the OREA 8 will be halted when its central axis (d) comes into contact with the frame of the receiver (25/1).

  This operation causes the cover stop pawl (79) to be pushed forwards into its housing in the receiver (25/1), against the force of its springs (81) so that the pressure on the pin (80) is released.

- Using the drift punch UT 2012 and a hammer, drive out the pin (80) (Fig. 9.2.o).
- After having withdrawn the drift punch UT 2012, carefully disengage the OREA 8 by using a screwdriver (e) as shown in Fig. 9.2.p.

  Take into account that the cover stop pawl (79) is subjected to the force of its springs (81).

- Lift the OREA 8 up and off the receiver (25/1).
- Take the cover stop pawl (79) and its springs (81) out of their housing in the receiver (25/1) (Fig. 9.2.q).

To reassemble, follow the above steps in reverse order, taking into account the following points :

- The cover stop pawl springs (81) should be lubricated before reinstalling them.
- The OREA 8 should now be used to press the cover stop pawl (79) and its springs (81) into their housing in order to enable the reinstallation of the pin (80).
- The cover stop pawl (79) should be oriented so that its notch ('f' on Fig. 9.2.q) for the pin (80) is at the bottom.
- After its reinstallation, ensure that the pin (80) does not protrude from the left or right sides of the receiver (25/1).

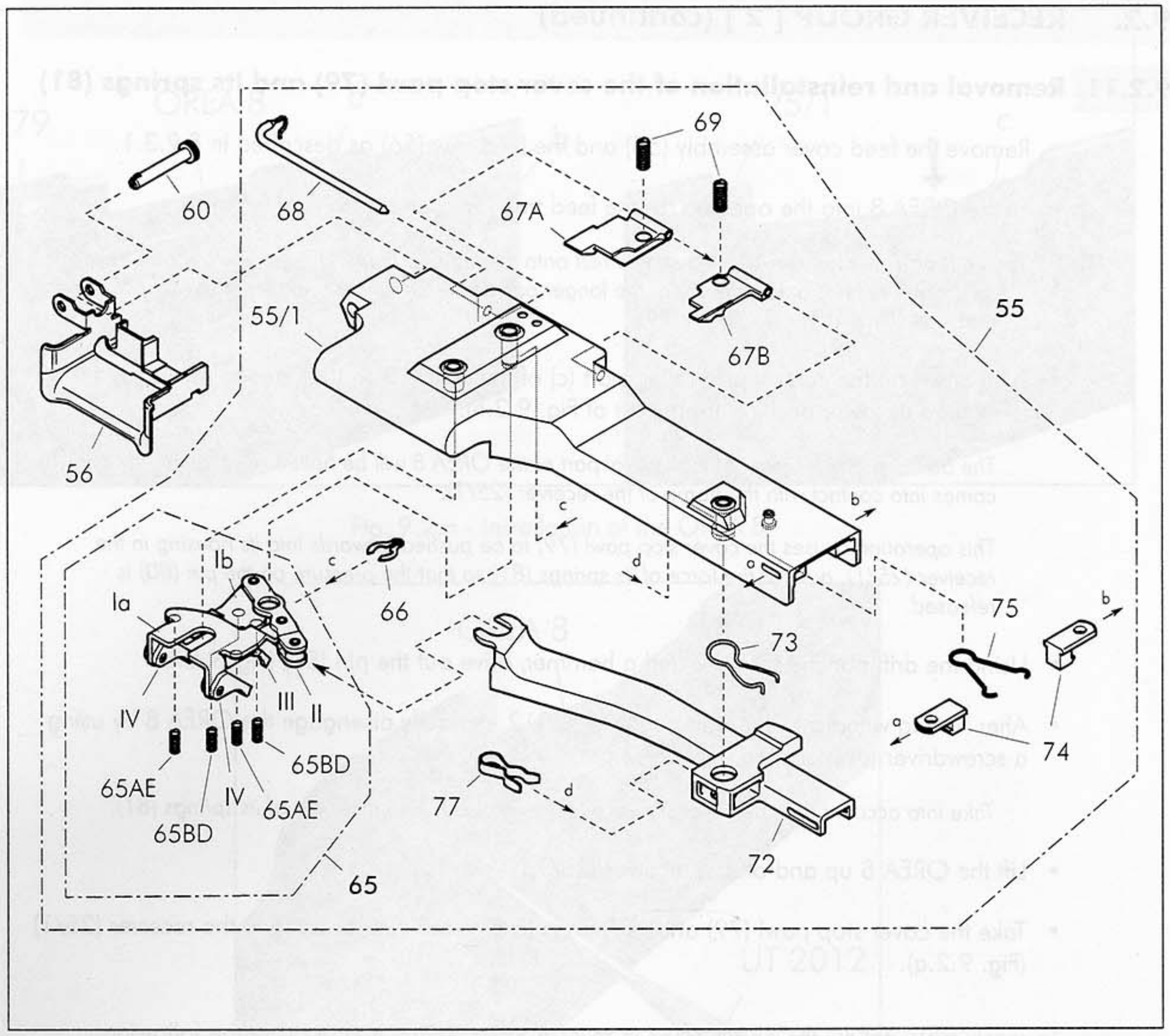


Fig. 9.3.a - Ammunition feeding group [3]

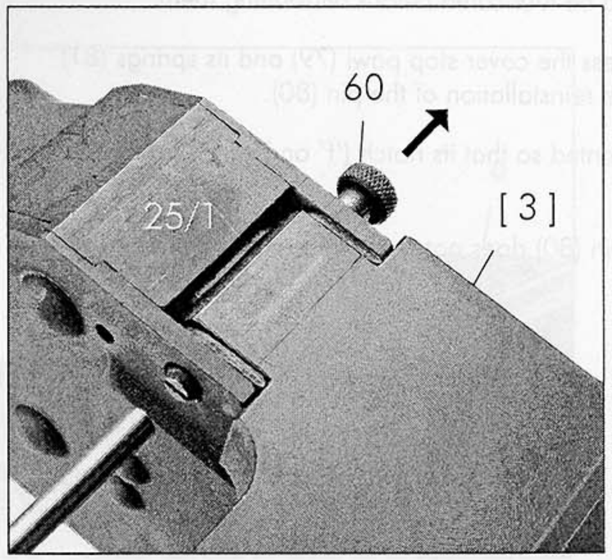


Fig. 9.3.b - Removal of the feed cover pin (60)

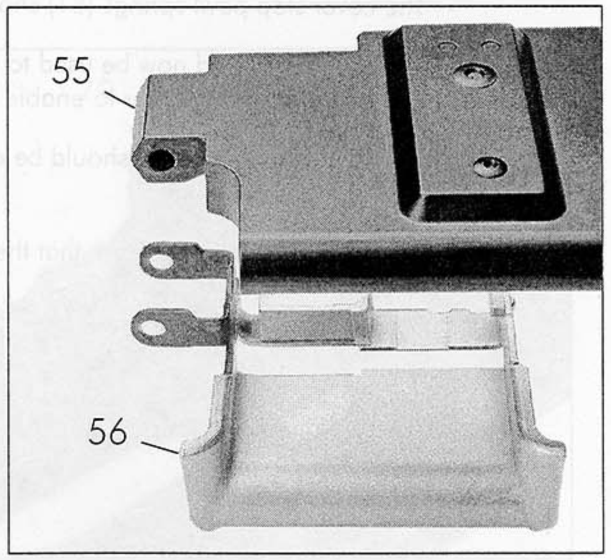


Fig. 9.3.c - Removed feed cover assembly (55) and feed tray (56)

9.3. AMMUNITION FEEDING GROUP [3] (Fig. 9.3.a)

9.3.1. Removal and reinstallation of the feed cover assembly (55) and the feed tray (56)

- With the feed cover assembly (55) closed and, if necessary, using a drift punch from the left side, take the feed cover pin (60) out of the right side of the receiver (25/1) (Fig. 9.3.b).
- Open the feed cover assembly (55) by using its catches (74) and then lift it, together with the feed tray (56), up and off the receiver (25/1) (Fig. 9.3.b and Fig. 9.3.c).

To reassemble, proceed as follows :

- First assemble the feed cover assembly (55) and the feed tray (56) and then fit this assembly, as horizontal as possible, with the front end first (against the spring-tensioned cover stop pawl (79)) onto the receiver (25/1).
- Firmly push on the rear end of the feed cover assembly (55) so that it locks by its catches (74) into the closed position and then reinstall the feed cover pin (60).

9.3.2. Removal of the front and rear retaining pawls (67A) and (67B)

- Remove the feed cover assembly (55) as described in § 9.3.1.
- Turn the retaining pawl pin (68) in order to disengage its front end from the notch (a) in the feed cover (55/1) (Fig. 9.3.d).
- While holding the front and rear retaining pawls (67A) and (67B) in position with a finger, withdraw their pin (68) (Fig. 9.3.e).

  Take into account that the front and rear retaining pawls (67A) and (67B) are subjected to the force of their springs (69).
- Remove the front and rear retaining pawls (67A) and (67B) together with their springs (69) (Fig. 9.3.e).

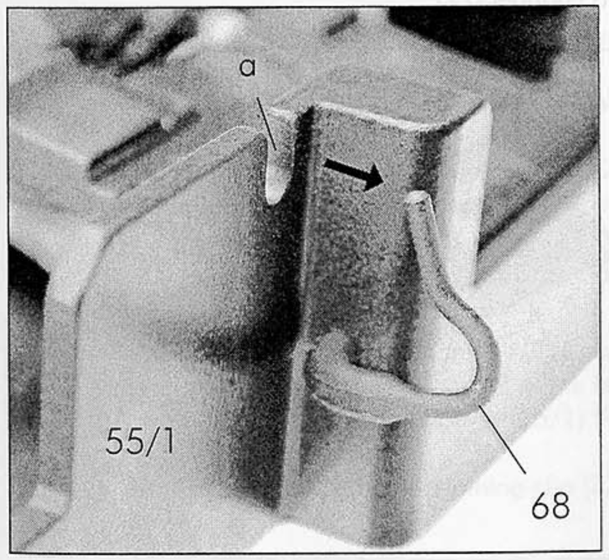


Fig. 9.3.d - Unlocking the retaining pawl pin (68)

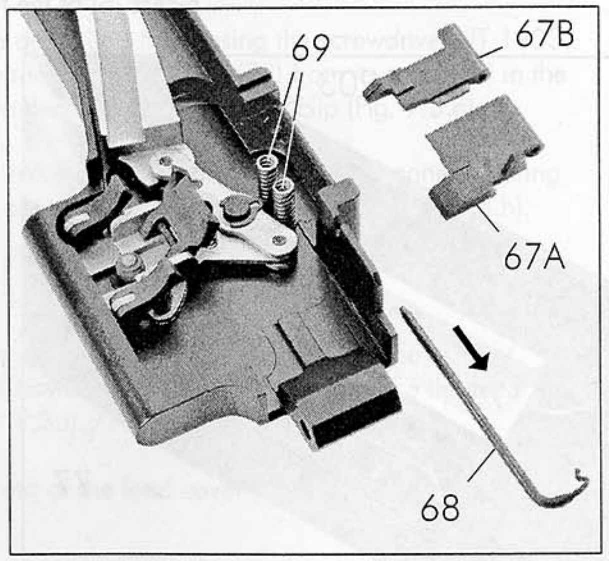


Fig. 9.3.e - Removal of the front and rear retaining pawls (67A) and (67B)

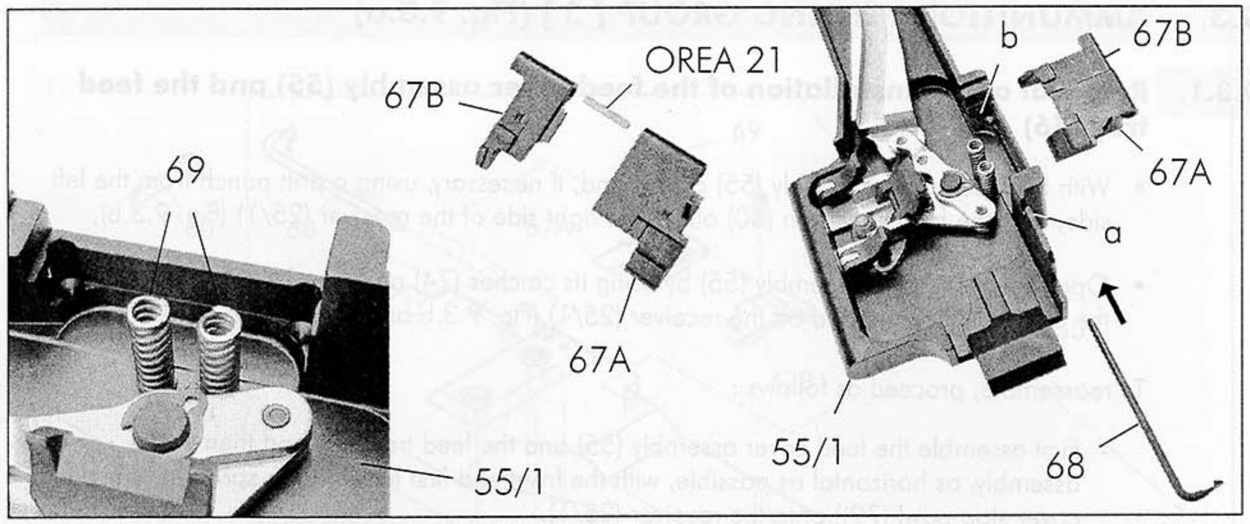
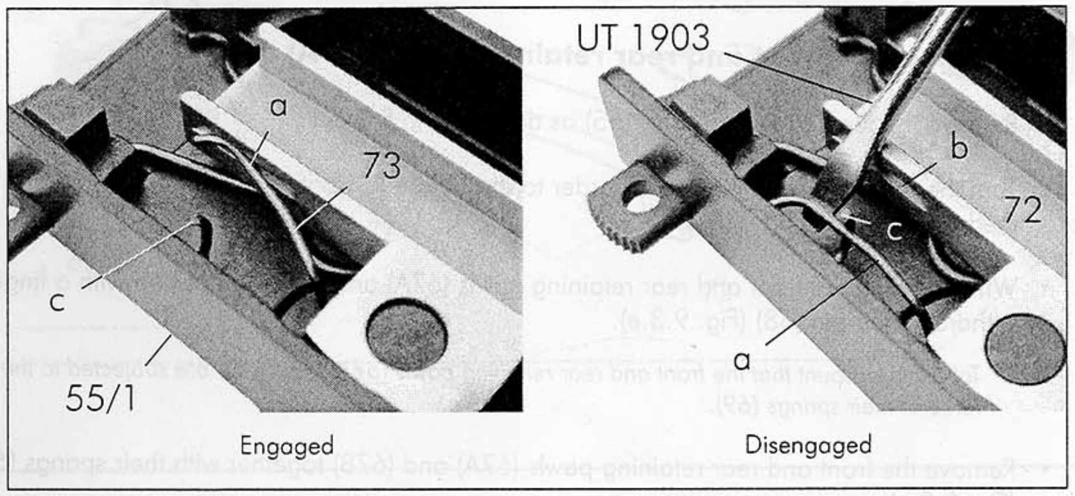


Fig. 9.3.f - Reinstallation of the front and rear retaining pawls (67A) and (67B) and their pin (68)



Engaged

Disengaged

Fig. 9.3.g - Disengaging the extremity (a) of the feed channel retaining clip (73) from the recess (b) of the feed channel (72)

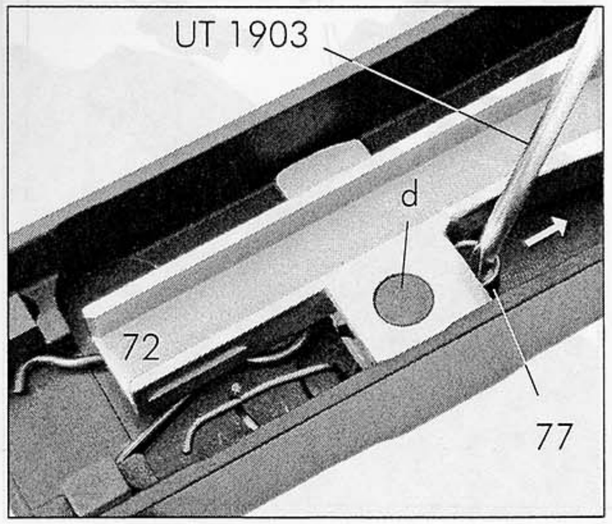


Fig. 9.3.h - Removal of the feed channel securing clip (77)

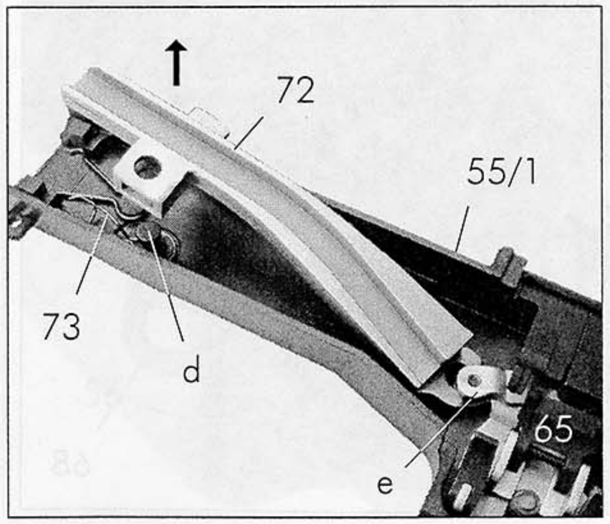


Fig. 9.3.i - Removal of the feed channel (72) and its retaining clip (73)

9.3. AMMUNITION FEEDING GROUP [3] (continued)

9.3.3. Reinstallation of the front and rear retaining pawls (67A) and (67B)

- Hold the feed cover (55/1) upside down and then position the 2 retaining pawl springs (69) onto their positioning pins inside the cover (Fig. 9.3.f).

The 2 retaining pawl springs (69) should be lubricated before reinstalling them.

- Using the OREA 21, temporarily assemble the front and rear retaining pawls (67A) and (67B) (Fig. 9.3.f).

Take into account that the front part of the rear retaining pawl (67B) should slightly cover the rear part of the front retaining pawl (67A).

- Position the temporarily assembled retaining pawls onto their springs (69) (Fig. 9.3.f).
- Push on the temporarily assembled retaining pawls in order to align their holes with the front and rear holes (a) and (b) in the feed cover (55/1) and then, from the front side, insert the retaining pawl pin (68) into the aligned holes (Fig. 9.3.f).

While pushing the retaining pawl pin (68) into the pawls, allow it to push out the OREA 21 through the rear hole (b) in the feed cover (55/1).

- Completely insert the retaining pawl pin (68) and then lock it into position (also refer to Fig. 9.3.d).
- Reinstall the feed cover assembly (55) as described in § 9.3.1.

9.3.4. Removal of the feed channel (72), its retaining clip (73) and its securing clip (77)

- Remove the feed cover assembly (55) as described in § 9.3.1.

Please note that it is not absolutely necessary, but recommended, to remove the feed cover assembly (55).

- Hold the feed cover assembly (55) upside down and then, using the screwdriver UT 1903, disengage the extremity (a) of the feed channel retaining clip (73) from its recess (b) in the feed channel (72) and hook it over the bended extremity (c) of the clip (Fig. 9.3.g).
- Hook the tip of the screwdriver UT 1903 into the visible part of the feed channel securing clip (77) and then pull the clip out of the opening of the feed channel (72) (Fig. 9.3.h).

As a result, the feed channel securing clip (77) will no longer secure the feed channel (72) into position on the mounting pin (d).

- Carefully lift the feed channel (72) up and off its mounting pin (d), disengage its front extremity from the feed link (e) of the feed pawls assembly (65) and then take the feed channel out of the feed cover (55/1) (Fig. 9.3.i).
- Take the feed channel retaining clip (73) out of the feed cover (55/1).

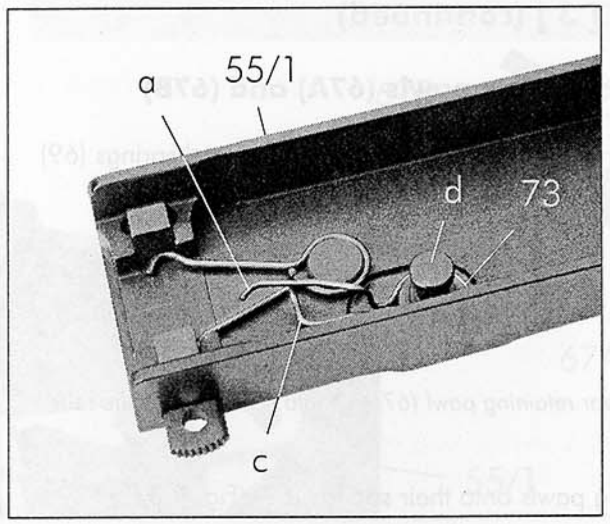


Fig. 9.3.j - Reinstallation of the feed channel retaining clip (73)

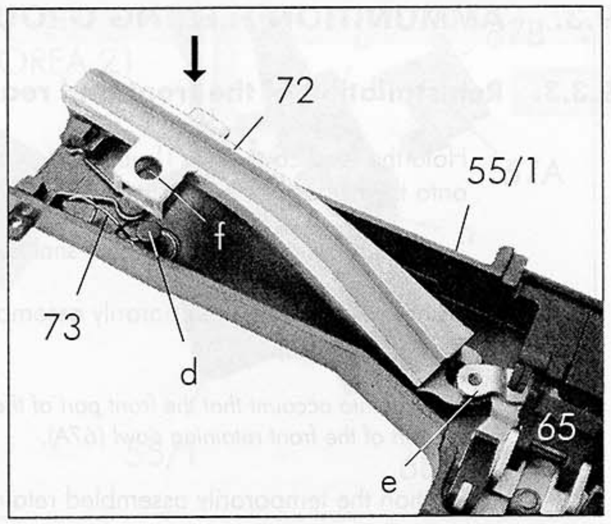


Fig. 9.3.k - Reinstallation of the feed channel (72)

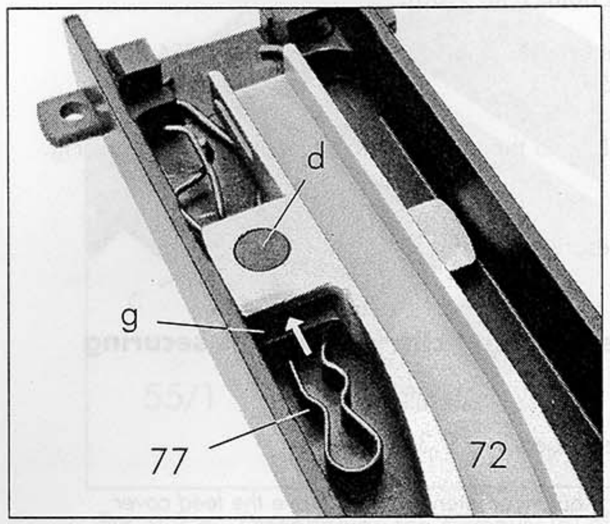


Fig. 9.3.l - Reinstallation of the feed channel securing clip (77)

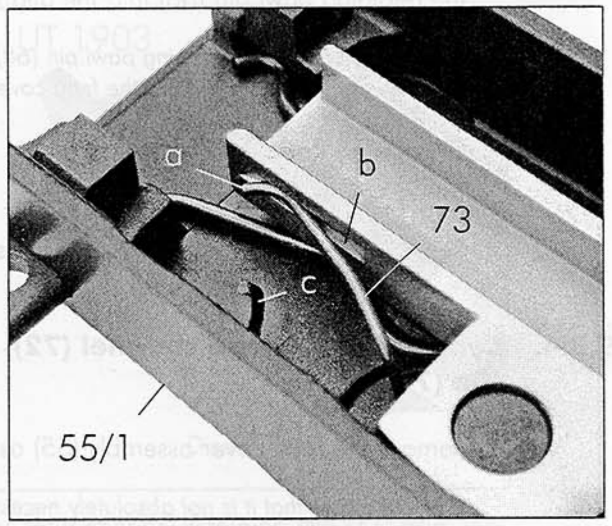


Fig. 9.3.m - Final position of the feed channel retaining clip (73)

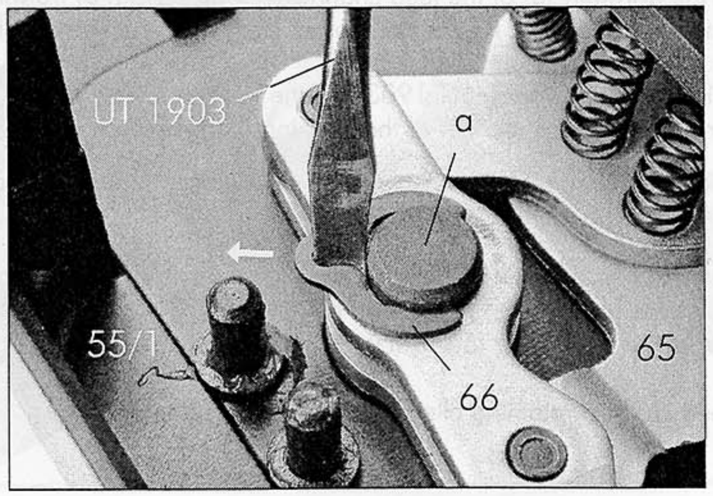


Fig. 9.3.n - Removal of the feed pawls assembly (65)

9.3. AMMUNITION FEEDING GROUP [3] (continued)

9.3.5. Reinstallation of the feed channel (72), its retaining clip (73) and its securing clip (77)

- Hold the feed cover (55/1) upside down.
- Hook the extremity (a) of the feed channel retaining clip (73) over the bended extremity (c) of the clip (Fig. 9.3.j).
- Fit the feed channel retaining clip (73), with its 2 extremities (a) and (c) pointing rearwards, onto the mounting pin (d) of the feed cover (55/1) (Fig. 9.3.j).
- Reinstall the feed channel (72) into the feed cover (55/1) (Fig. 9.3.k).

  First engage the front extremity of the feed channel (72) into the feed link (e) of the feed pawls assembly (65) and then fit the hole (f) of the feed channel onto the mounting pin (d) of the feed cover (55/1).

- Insert the feed channel securing clip (77), with its 2 extremities first, into the opening (g) of the feed channel (72) and then, using the tip of the screwdriver UT 1903, push on the clip in order to fit it onto the mounting pin (d) of the feed cover (55/1) (Fig. 9.3.l).

  As a result, the feed channel securing clip (77) secures the feed channel (72) into position on the mounting pin (d).

- Using the screwdriver UT 1903, unhook the extremity (a) of the feed channel retaining clip (73) from the bended extremity (c) of the clip, let it move towards the feed channel (72) and then ensure that it correctly engages the recess (b) in the feed channel (Fig. 9.3.m).
- Reinstall the feed cover assembly (55) as described in § 9.3.1.

9.3.6. Removal and reinstallation of the feed pawls assembly (65)

- Remove the feed cover assembly (55) as described in § 9.3.1.

  Please note that it is not absolutely necessary, but recommended, to remove the feed cover assembly (55).

- Remove the front and rear retaining pawls (67A) and (67B) as described in § 9.3.2.
- Remove the feed channel (72) as described in § 9.3.4.
- Using the screwdriver UT 1903, release and remove the circlip (66) from the mounting pin (a) of the feed cover (55/1) (Fig. 9.3.n).
- Carefully lift the feed pawls assembly (65) up and off its mounting pin (a) and out of the feed cover (55/1) (Fig. 9.3.n).

To reassemble, follow the above steps in reverse order taking into account that the circlip (66) should correctly be fitted onto the mounting pin (a) of the feed cover (55/1).

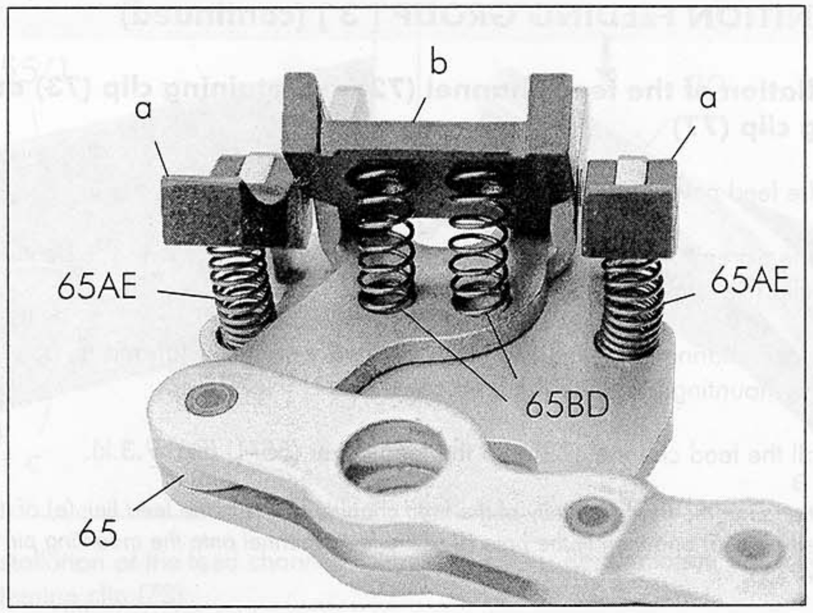


Fig. 9.3.o - The outer and inner pawl springs (65AE) and (65BD)

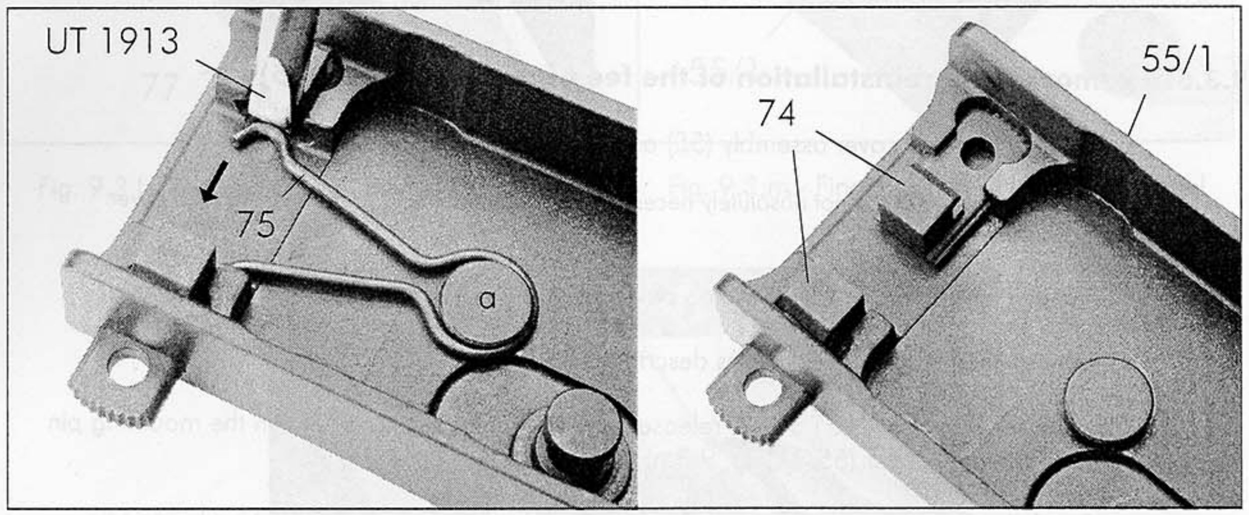


Fig. 9.3.p - Removal of the feed cover catches (74) and the feed cover catch clip (75)

9.3. AMMUNITION FEEDING GROUP [3] (continued)

9.3.7. Replacement of the outer and inner pawl springs (65AE) and (65BD)

- Remove the feed cover assembly (55) as described in § 9.3.1.
- Remove the feed channel (72) as described in § 9.3.4.
- Remove the feed pawls assembly (65) as described in § 9.3.6.

  Please note that the 3 above steps are not absolutely necessary, but recommended.

- In order to remove an outer pawl spring (65AE), raise the corresponding outer pawl (a) with a finger and then, using the screwdriver UT 1903, disengage and remove the spring (Fig. 9.3.o).
- In order to remove an inner pawl spring (65BD), raise the inner pawl (b) with a finger and then, using the screwdriver UT 1903, disengage and remove the spring (Fig. 9.3.o).

To reassemble, follow the above steps in reverse order, taking into account the following points :

- Ensure that both extremities of the outer and inner pawl springs (65AE) and (65BD) correctly engage their recesses in the feed pawls assembly (65).
- An outer pawl spring (65AE) has a length of approx. 22 mm.
- An inner pawl spring (65BD) has a length of approx. 19 mm.

9.3.8. Removal and reinstallation of the feed cover catches (74) and the feed cover catch clip (75)

- Remove the feed cover assembly (55) as described in § 9.3.1.

  Please note that it is not absolutely necessary, but recommended, to remove the feed cover assembly (55).

- Remove the feed channel (72) as described in § 9.3.4.
- Using the screwdriver UT 1913, disengage one of the extremities of the feed cover catch clip (75) from the corresponding feed cover catch (74) and then release the clip from its mounting pin (a) of the feed cover (55/1) (Fig. 9.3.p).

  During this operation, hold the feed cover catch clip (75) in position with a finger in order to avoid that it jumps out.

- Take the feed cover catch clip (75) and then the 2 feed cover catches (74) out of the feed cover (55/1) (Fig. 9.3.p).

To reassemble, follow the above steps in reverse order, taking into account the following points :

- Ensure that the feed cover catch clip (75) is oriented so that its flat side is facing the feed cover (55/1) and ensure that its coil is correctly fitted onto the mounting pin (a).

  If the flat side of the feed cover catch clip (75) is not facing the feed cover (55/1), it will not be possible to fit the clip onto the mounting pin (a).

- Ensure that both extremities of the feed cover catch clip (75) correctly engage their recesses in the feed cover catches (74).

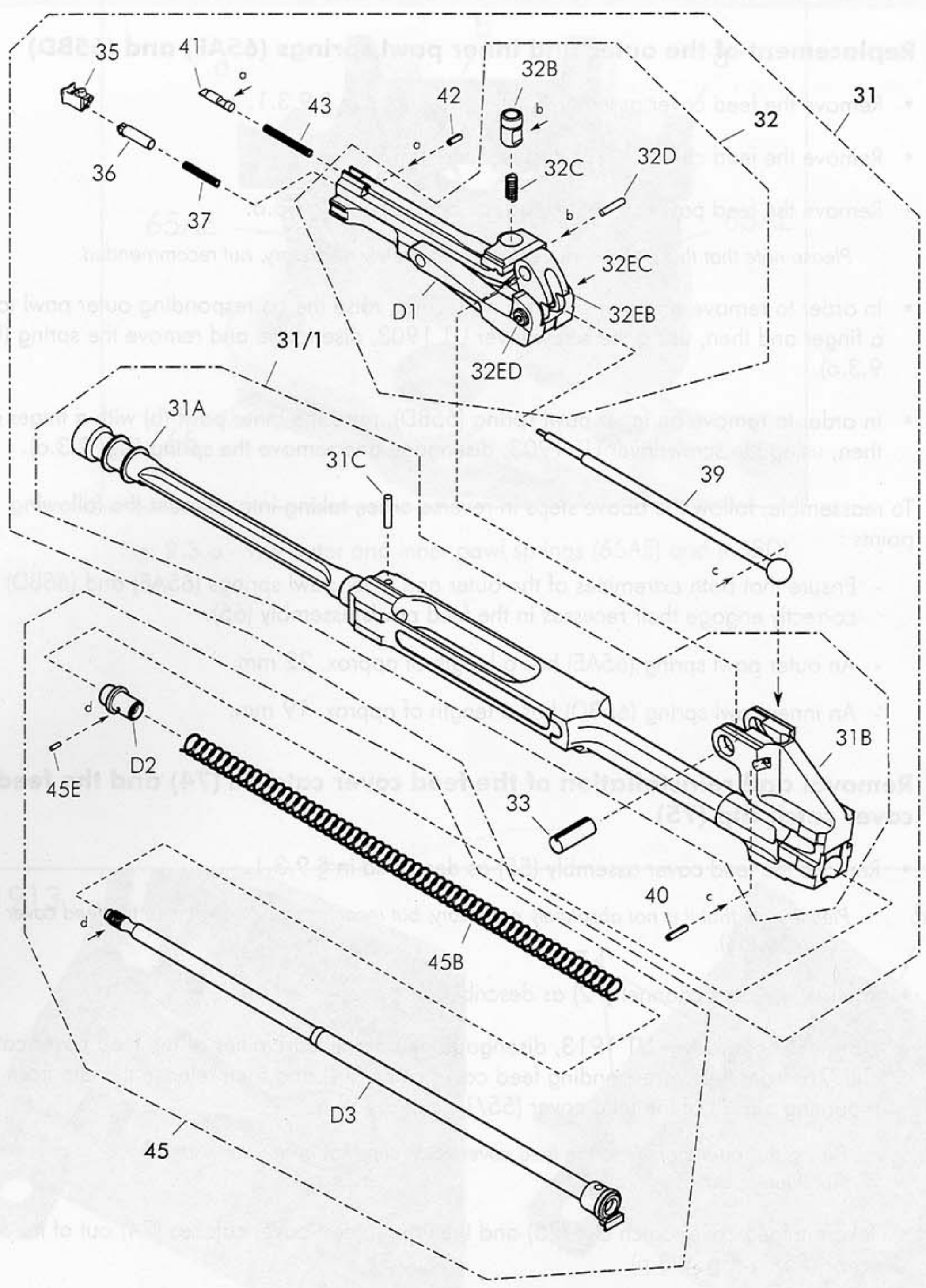


Fig. 9.4.a - Moving parts group [4]

Although the piston extension link (32EB) as well as the half-axes (32EC) and (32ED) are available as spare parts, it is not recommended to intervene on them.

If such interventions are nevertheless required, they may only be carried out by qualified technicians using the instructions and the tools which are only available on **special request**.

9.4. MOVING PARTS GROUP [4] (Fig. 9.4.a)

9.4.1. Separation of the moving parts assembly (31) into the breech block and the piston (and reassembly)

In this paragraph, 'breech block' stands for the breech block assembly (32) provided with the extractor (35) (with its plunger (36) and its spring (37)) and the ejector (41) (with its spring (43)) while 'piston' stands for the piston assembly (31/1) provided with the firing pin (39).

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.
- Remove the return spring assembly (45) and the moving parts assembly (31) as described for 'field stripping' in § 7.1.

NOTE : In order to facilitate this and the following disassembling (and reassembling) procedures, the moving parts assembly (31) can be fixed into a vice.

When fixing the moving parts assembly (31) into a vice, fix it by the rear end of the wider part of the slide (31B).

It is also recommended to use a rag to avoid scratches.

- Using the drift punch UT 2010 and a hammer, drive out the pin (33) (Fig. 9.4.b).
- After having removed the drift punch UT 2010, the breech block (A) can be separated from the piston (B) by carefully sliding it along the firing pin (39) (Fig. 9.4.c).

To reassemble, follow the above steps in reverse order.

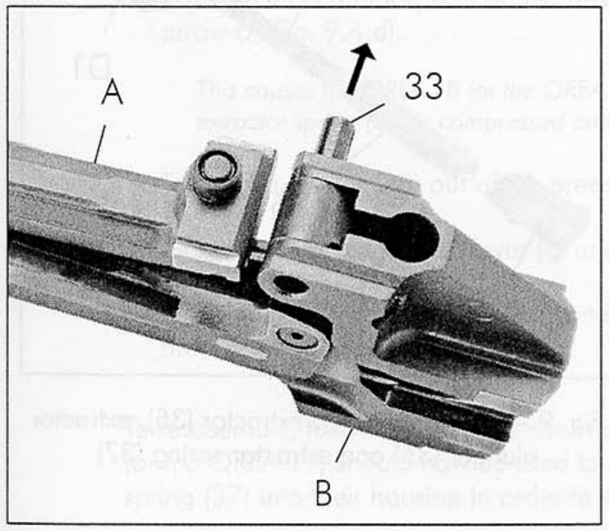


Fig. 9.4.b - Removal of the pin (33)

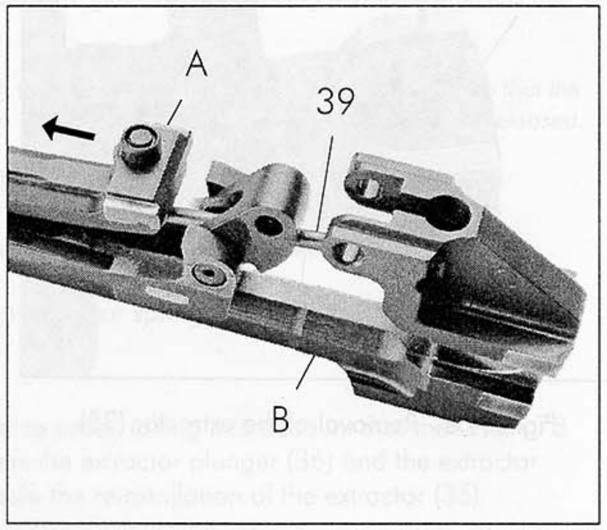


Fig. 9.4.c - Separating the breech block (A) from the piston (B)

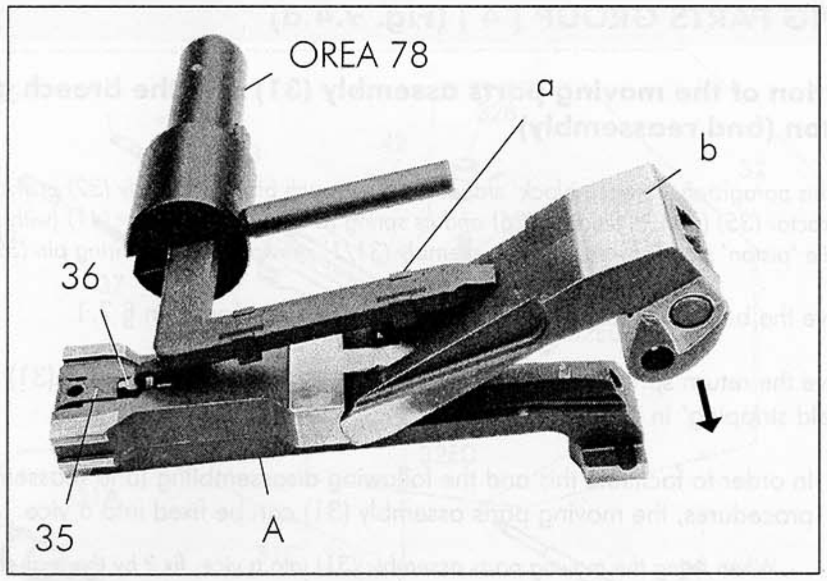


Fig. 9.4.d - Using the OREA 78 to remove the extractor (35) and its components

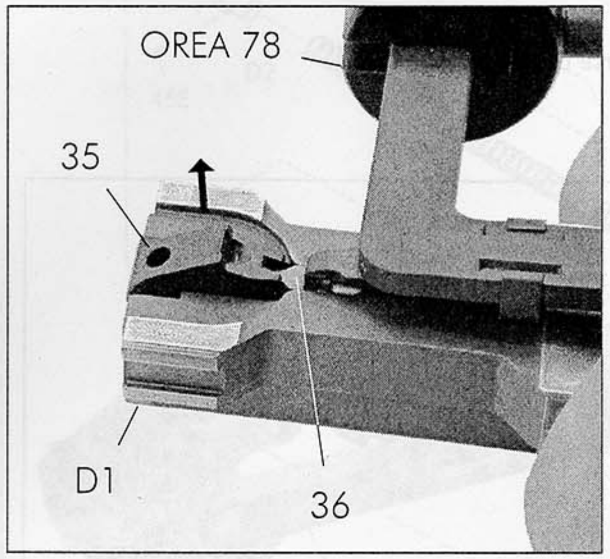


Fig. 9.4.e - Removal of the extractor (35)

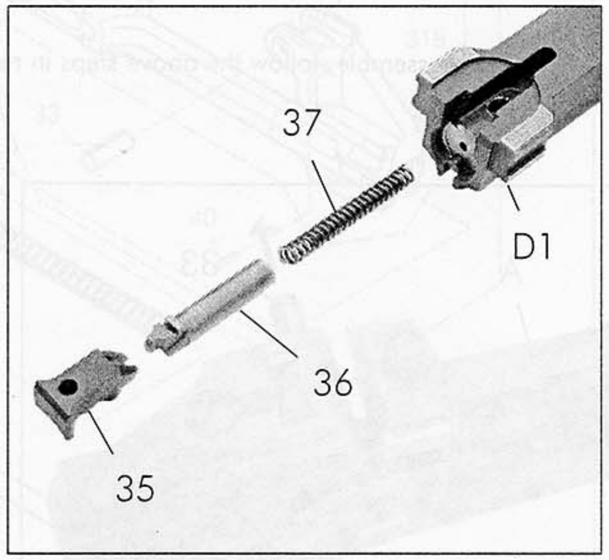


Fig. 9.4.f - Disassembled extractor (35), extractor plunger (36) and extractor spring (37)

9.4. MOVING PARTS GROUP [4] (continued)

9.4.2. Removal and reinstallation of the extractor (35), its plunger (36) and its spring (37)

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.
- Remove the return spring assembly (45) and the moving parts assembly (31) as described for 'field stripping' in § 7.1.
- Separate the moving parts assembly (31) into the breech block and the piston as described in § 9.4.1.

NOTE : The OREA 78 comprises the OREA 19 which has been riveted onto it (refer to (a) on Fig. 9.4.d).

It is precisely this 'OREA 19'-part of the OREA 78 which will be used when carrying out the following steps.

Please note that the OREA 19 is also available, and can therefore also be used, as a separate tool.

When carrying out the 2 next steps, ensure that the OREA 78 (or the OREA 19) correctly fits into position and be careful not to trap your fingers.

- While holding the breech block (A) upside down, fit the OREA 78 (or the OREA 19) onto the extractor plunger (36) and the locking lever (b) (Fig. 9.4.d).

  One of the extremities of the OREA 78 (or the OREA 19) should fit into the groove of the extractor plunger (36) while the other extremity should fit into the hole in the body of the locking lever (b).

- With the breech block (A) still held upside down, push on the locking lever (b) (refer to the arrow on Fig. 9.4.d).

  This causes the OREA 78 (or the OREA 19) to pull the extractor plunger (36) rearwards so that the extractor spring (37) is compressed and, as a result, the pressure on the extractor (35) is released.

- Take the extractor (35) out of the breech block body (D1) (Fig. 9.4.e).
- Gently release the locking lever (b) and remove the OREA 78 (or the OREA 19).
- Remove the extractor plunger (36) and the extractor spring (37) from their housing in the breech block body (D1) (Fig. 9.4.f).

To reassemble, follow the above steps in reverse order, taking into account that the OREA 78 (or the OREA 19) should now be used to press the extractor plunger (36) and the extractor spring (37) into their housing in order to enable the reinstallation of the extractor (35).

After any intervention on the extractor (35), the latter should be checked and gauged as described in § 10.4.

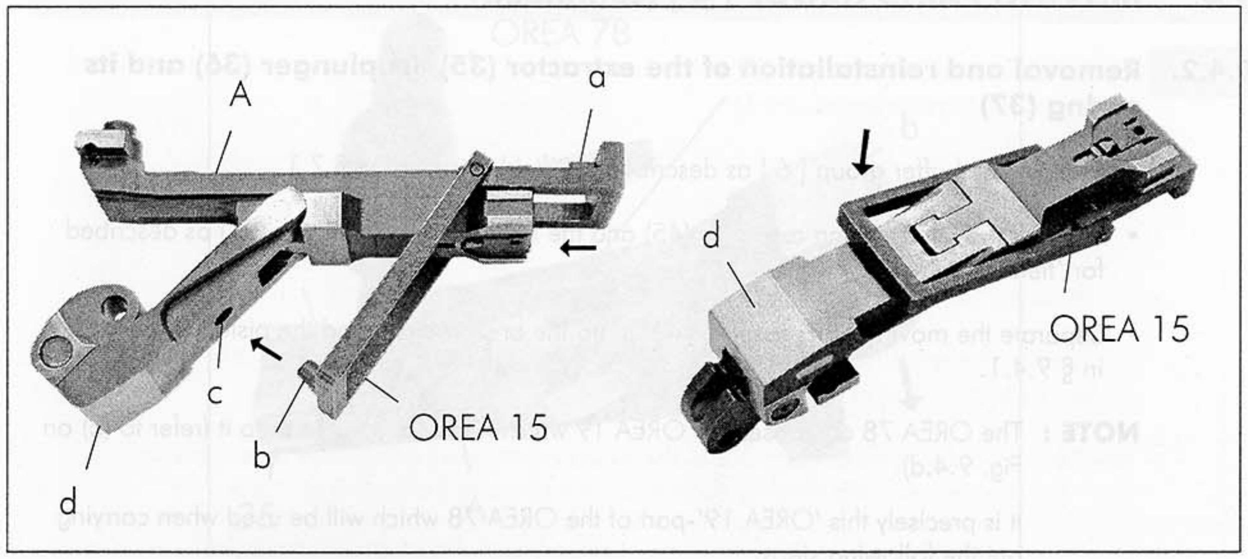


Fig. 9.4.g - Installation of the OREA 15 onto the breech block (A)

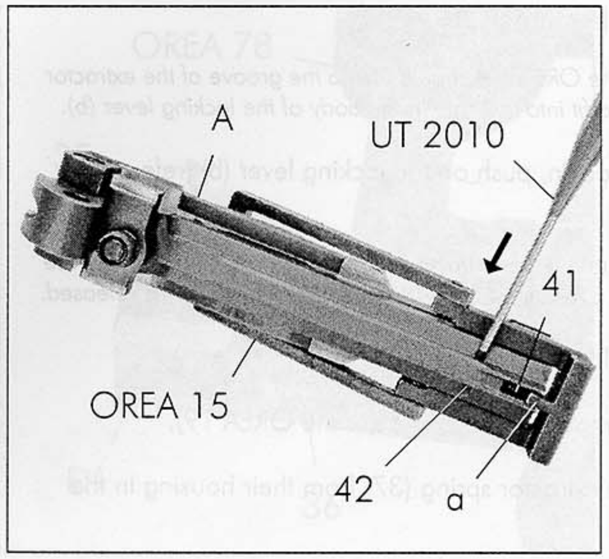


Fig. 9.4.h - Removal of the pin (42)

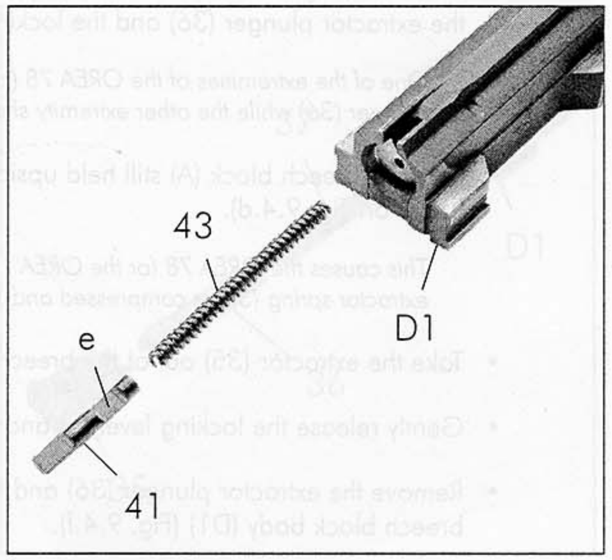


Fig. 9.4.i - Removal of the ejector (41) and its spring (43)

9.4.3. Removal and reinstallation of the ejector (41) and its spring (43)

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.
- Remove the return spring assembly (45) and the moving parts assembly (31) as described for 'field stripping' in § 7.1.
- Separate the moving parts assembly (31) into the breech block and the piston as described in § 9.4.1.
- Install the OREA 15 onto the breech block (A) (Fig. 9.4.g).

  The inner protruding stud (a) of the OREA 15 should push onto the ejector (41) (also refer to Fig. 9.4.h) while the pin (b) at the other side of the OREA 15 should fit into the opening (c) in the body of the locking lever (d).

- Turn the breech block (A), together with the OREA 15, upside down and then push on the locking lever (d) and the OREA 15 in order to obtain the situation shown in the right part of Fig. 9.4.g.

  This causes the OREA 15 to push the ejector (41), against the force of its spring (43), into the breech block body (D1) so that the pressure on the pin (42) is released.

- Let the breech block (A), together with the OREA 15, rest onto a solid surface and then, using the drift punch UT 2010 and a hammer, drive out the pin (42) (Fig. 9.4.h).

  NOTE : Once it has been removed, the pin (42) must always be replaced by a new one !

- Withdraw the drift punch UT 2010.
- Gently release the locking lever (d) and then remove the OREA 15.
- Remove the ejector (41) and its spring (43) from their housing in the breech block body (D1) (Fig. 9.4.i).

To reassemble, follow the above steps in reverse order, taking into account the following points :

- The OREA 15 should now be used to press the ejector (41) and its spring (43) into their housing in order to enable the reinstallation of the pin (42).
- When fitting the ejector (41) back into its housing in the breech block body (D1), its notch ('e' on Fig. 9.4.i) for the pin (42) should be facing upwards.
- After having reinstalled a new pin (42), ensure that it does not protrude from the left or right sides of the breech block body (D1).

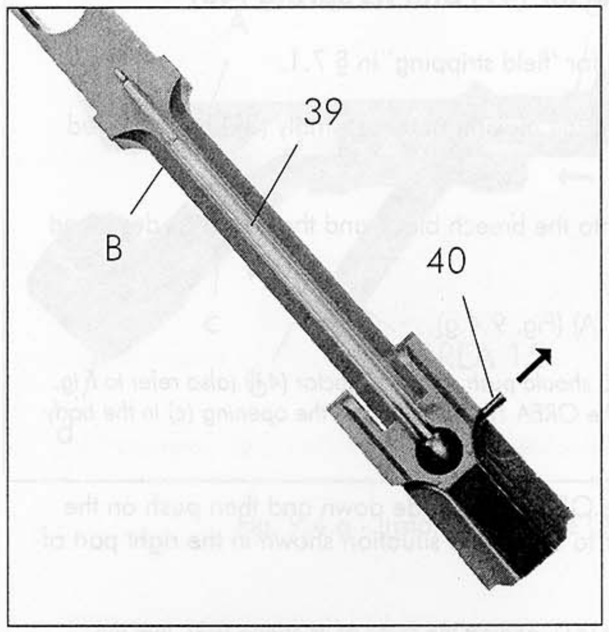


Fig. 9.4.j - Removal of the pin (40)

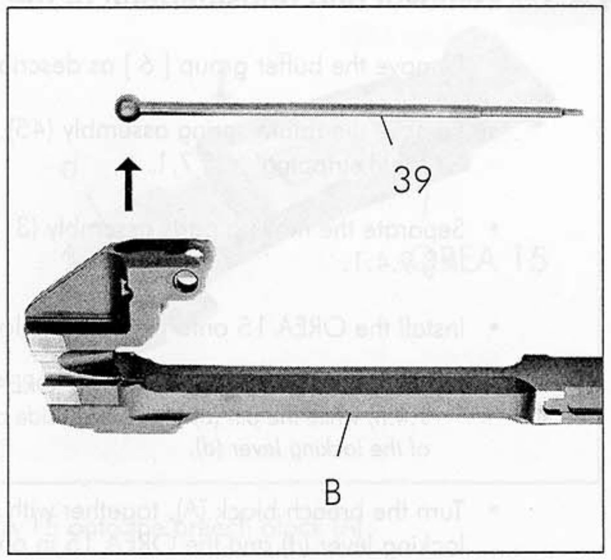


Fig. 9.4.k - Removal of the firing pin (39)

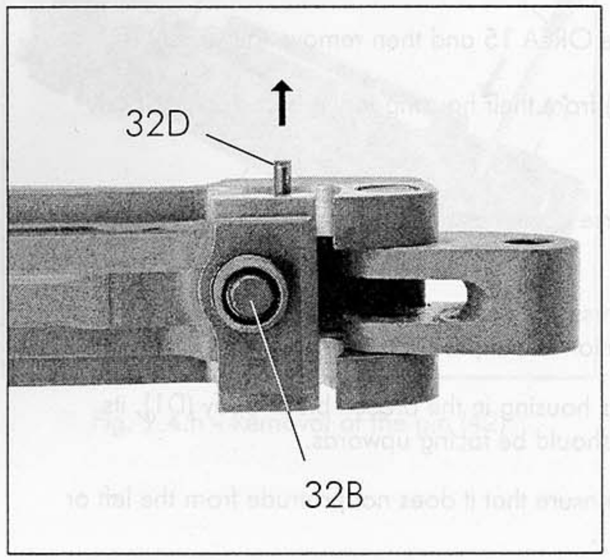


Fig. 9.4.l - Removal of the pin (32D)

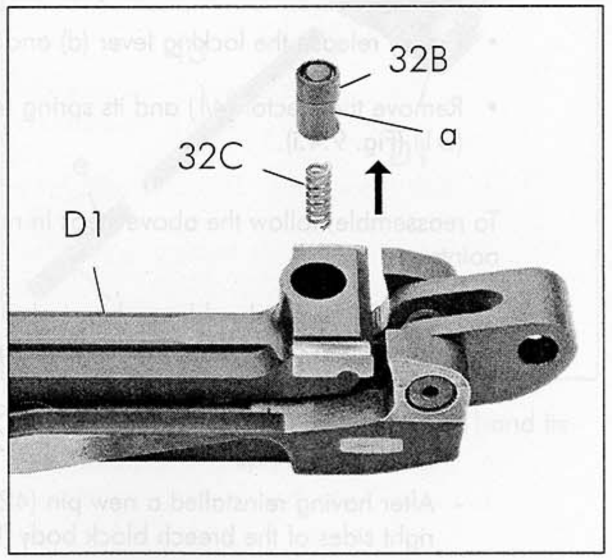


Fig. 9.4.m - Removal of the feed channel roller (32B) and its spring (32C)

9.4.4. Removal and reinstallation of the firing pin (39)

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.
- Remove the return spring assembly (45) and the moving parts assembly (31) as described for 'field stripping' in § 7.1.
- Separate the moving parts assembly (31) into the breech block and the piston as described in § 9.4.1.

  If the moving parts assembly (31) has been fixed, by the piston (B), into a vice, it is recommended not to remove the piston from the vice.

- Using the drift punch UT 2010 and a hammer, drive out the pin (40) (Fig. 9.4.j).

  NOTE : Once it has been removed, the pin (40) must always be replaced by a new one !

- Withdraw the drift punch UT 2010.
- Lift the firing pin (39) up and out of its housing at the rear side of the piston (B) (Fig. 9.4.k).

To reassemble, follow the above steps in reverse order.

> After any intervention on the firing pin (39), the latter should be checked and its protrusion should be gauged as described in § 10.5.

9.4.5. Removal and reinstallation of the feed channel roller (32B) and its spring (32C)

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.
- Remove the return spring assembly (45) and the moving parts assembly (31) as described for 'field stripping' in § 7.1.
- Separate the moving parts assembly (31) into the breech block and the piston as described in § 9.4.1.
- Let the breech block rest onto a solid surface and then, using the drift punch UT 2010 and a hammer, drive out the pin (32D) (Fig. 9.4.l).

  NOTE : Once it has been removed, the pin (32D) must always be replaced by a new one !

- While firmly holding the feed channel roller (32B) in position with a finger, withdraw the drift punch UT 2010.

  Take into account that the feed channel roller (32B) is subjected to the force of its spring (32C).

- Gently release the pressure on the feed channel roller (32B) and then take it, together with its spring (32C), out of the breech block body (D1) (Fig. 9.4.m).

To reassemble, follow the above steps in reverse order, taking into account that, when fitting the feed channel roller (32B) back into its housing in the breech block body (D1), its notch ('a' on Fig. 9.4.m) for the pin (32D) should be facing rearwards (if necessary, use the drift punch UT 2010 as a guide).

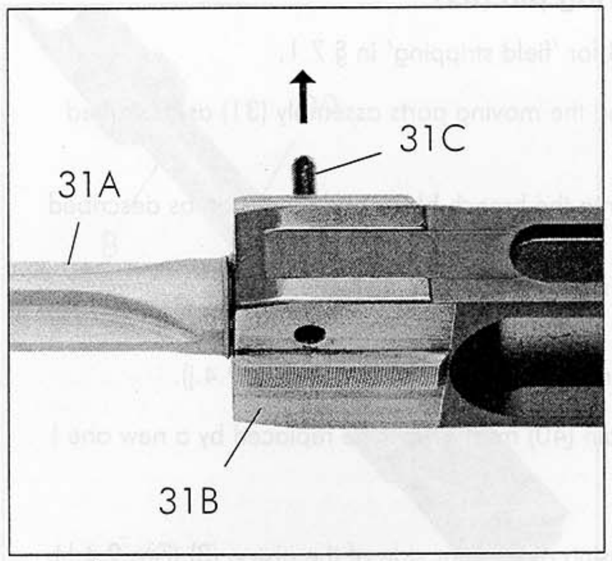


Fig. 9.4.n - Removal of the pin (31C)

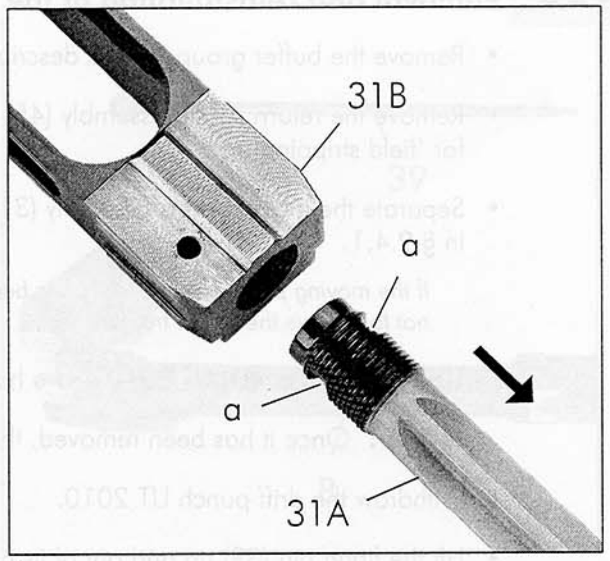


Fig. 9.4.o - Separation of the piston (31A) from the slide (31B)

9.4. MOVING PARTS GROUP [4] (continued)

9.4.6. Separation of the piston (31A) from the slide (31B) (and reassembly)

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.
- Remove the return spring assembly (45) and the moving parts assembly (31) as described for 'field stripping' in § 7.1.

NOTE : In order to facilitate the following disassembling (and reassembling) procedure, the moving parts assembly (31) can be fixed into a vice.

When fixing the moving parts assembly (31) into a vice, fix it by the rear end of the wider part of the slide (31B).

It is also recommended to use a rag to avoid scratches.

- Using the drift punch UT 2010 and a hammer, drive out the pin (31C) (Fig. 9.4.n).

NOTE : Once it has been removed, the pin (31C) must always be replaced by a new one !

- Withdraw the drift punch UT 2010.
- Unscrew the piston (31A) from the slide (31B) (Fig. 9.4.o).

To reassemble, follow the above steps in reverse order, taking into account the following points :

- When the piston (31A) is screwed back into the slide (31B), it should first be screwed fully home and then be unscrewed (not more than 180° !!) until one of its notches ('a' on Fig. 9.4.o) is correctly aligned with the hole for the pin (31C).
- After having reinstalled the pin (31C), ensure that it does not protrude from the upper or lower side of the slide (31B).

After any intervention on the moving parts group [4], the headspace, the extractor (35) and the firing pin (39) should be checked and gauged as described in chapter 10.

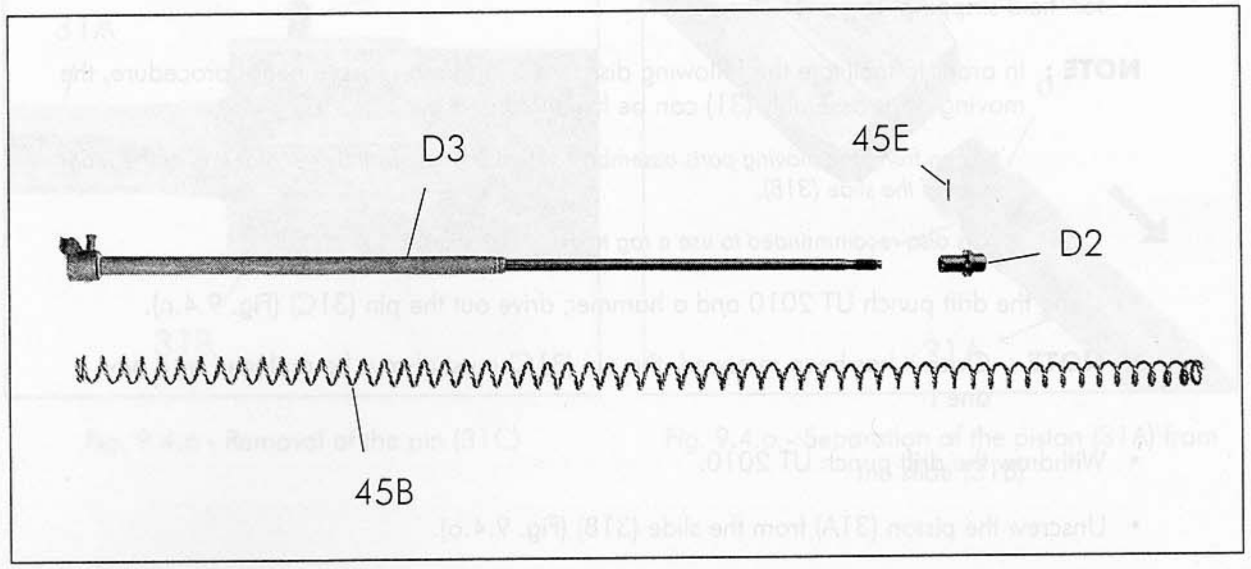


Fig. 9.4.p - Disassembled components of the return spring assembly (45)

9.4. MOVING PARTS GROUP [4] (continued)

9.4.7. Disassembly and reassembly of the return spring assembly (45)

- Remove the buffer group [6] and the return spring assembly (45) as described for 'field stripping' in § 7.1.
- Hold the return spring assembly (45) and then, using the drift punch UT 2005 and a hammer, drive out the pin (45E) (Fig. 9.4.p).

  NOTE : Once it has been removed, the pin (45E) must always be replaced by a new one !
- Withdraw the drift punch UT 2005.
- Manually compress the return spring (45B) and then, using the wrench UT 1107, unscrew the return spring sleeve (D2) from the return spring stem (D3) (Fig. 9.4.p).
- Remove the return spring (45B) from its stem (D3) (Fig. 9.4.p).

To reassemble, follow the above steps in reverse order, taking into account the following points :

- When the return spring sleeve (D2) is screwed back onto the return spring stem (D3), it should first be screwed fully home and then be unscrewed (not more than 180° !!) until its holes are correctly aligned with the hole for the pin (45E) in the stem.
- After having reinstalled the pin (45E), ensure that it does not protrude from the return spring sleeve (D2).

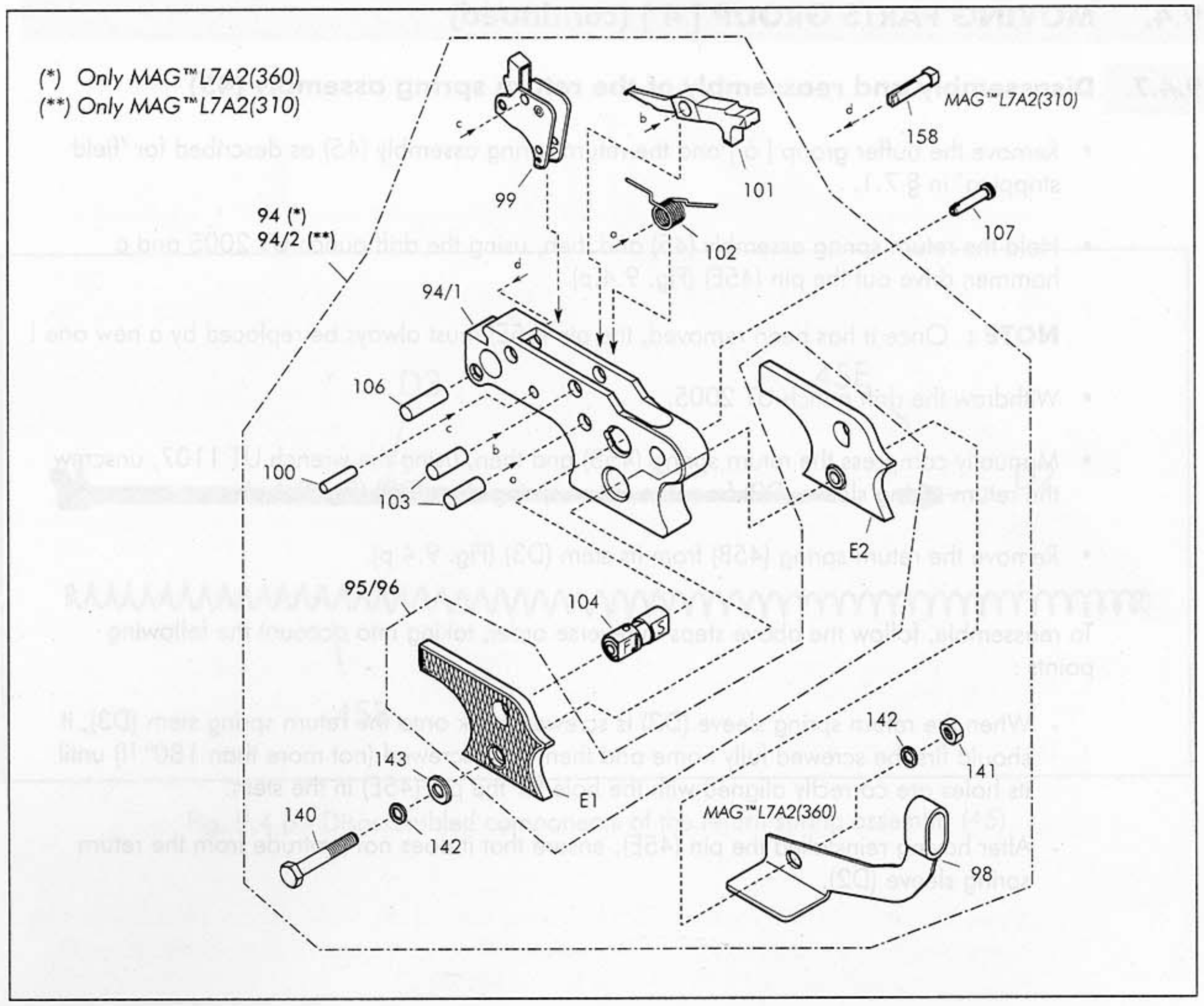
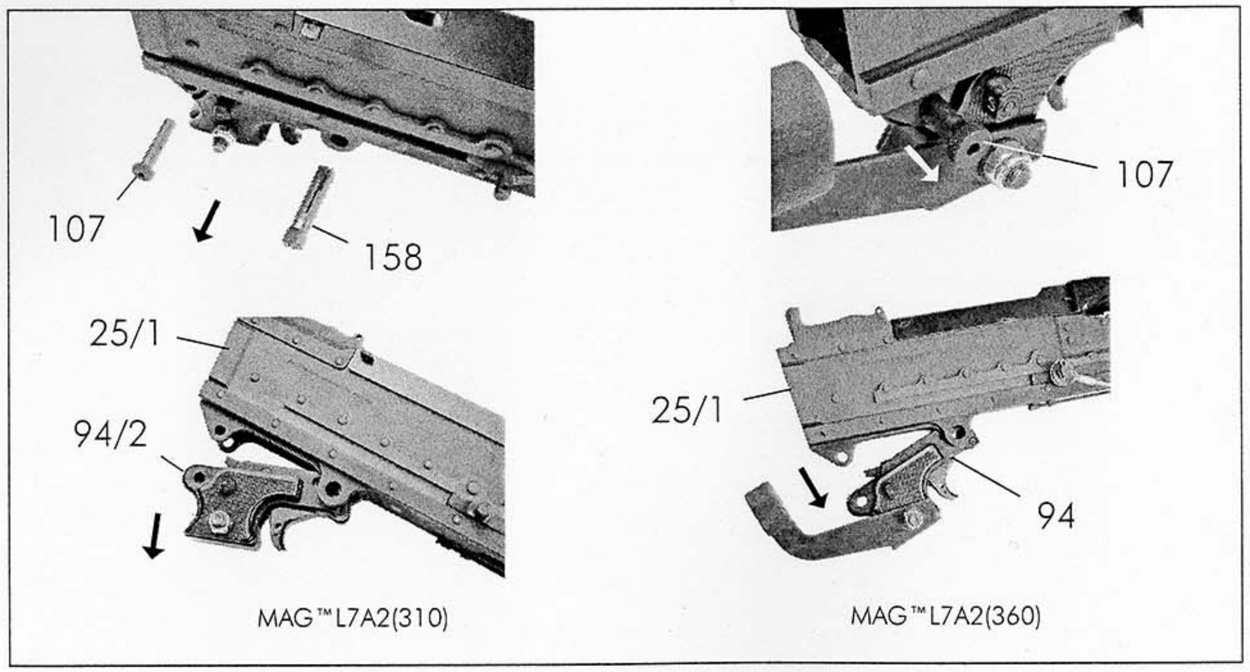


Fig. 9.5.a - Trigger group [5]



MAG™L7A2(310)

MAG™L7A2(360)

Fig. 9.5.b - Removal of the trigger frame assembly ((94) / (94/2))

9.5. TRIGGER GROUP [5] (Fig. 9.5.a)

9.5.1. Removal and reinstallation of the trigger frame assembly ((94) / (94/2))

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.
- Remove the return spring assembly (45) and the moving parts assembly (31) as described for 'field stripping' in § 7.1.
- In case of the MAG™L7A2(310), pull the securing pin (158) out of the right side of the receiver (25/1) (Fig. 9.5.b).

  In case of the MAG™L7A2(360), pull the cocking cable (51) through the opening of its support (98) or remove it as described in § 9.2.5.
- While holding the trigger frame assembly ((94) / (94/2)) with one hand so that it cannot fall down, pull the securing pin (107) out of the right side of the receiver (25/1) (Fig. 9.5.b).

  If necessary, push on the left end of the securing pin (107) to facilitate its removal.
- Unhook and remove the trigger frame assembly ((94) / (94/2)) from the bottom plate of the receiver (25/1) (Fig. 9.5.b).

To reassemble, follow the above steps in reverse order, taking into account that the securing pin (107) should be pushed fully home.

9.5.2. Removal and reinstallation of the grip plates (95/96) and, in case of the MAG™L7A2(360), also the cocking cable support (98)

- Remove the trigger frame assembly ((94) / (94/2)) as described in § 9.5.1.
- Using the open-end wrench UT 1119 and the combination wrench UT 2912 and taking care not to lose the 2 scored washers (142) and the washer (143), unscrew the screw (140) and the nut (141) in order to remove the left and right grip plates (E1) and (E2) and, in case of the MAG™L7A2(360), also the cocking cable support (98), from the trigger frame body (94/1) (Fig. 9.5.c).

To reassemble, follow the above steps in reverse order.

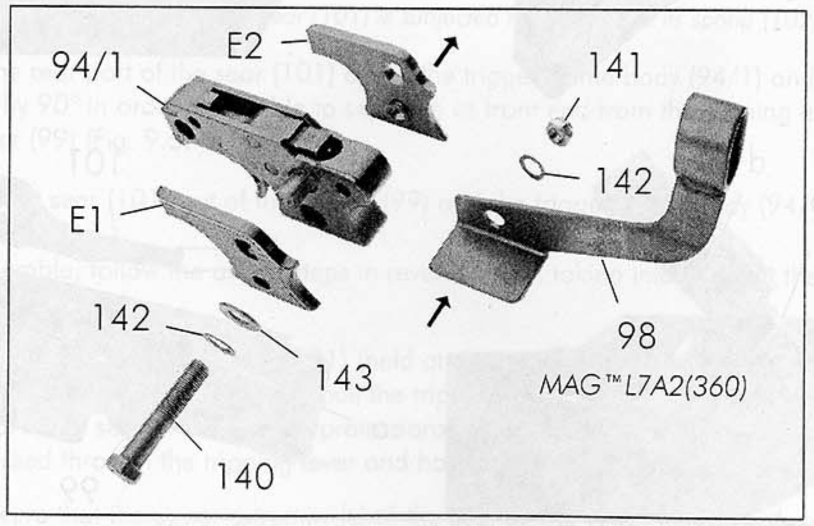


Fig. 9.5.c - Removal of the grip plates (95/96) and, in case of the MAG™L7A2(360), also the cocking cable support (98)

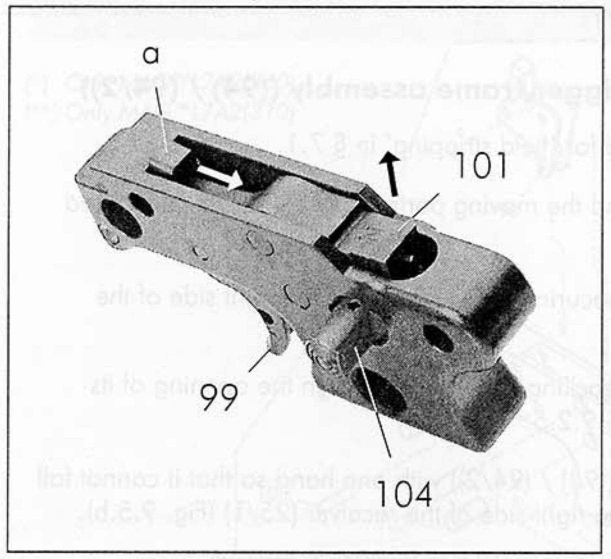


Fig. 9.5.d - Pulling the tripping lever (a) of the trigger (99) rearwards

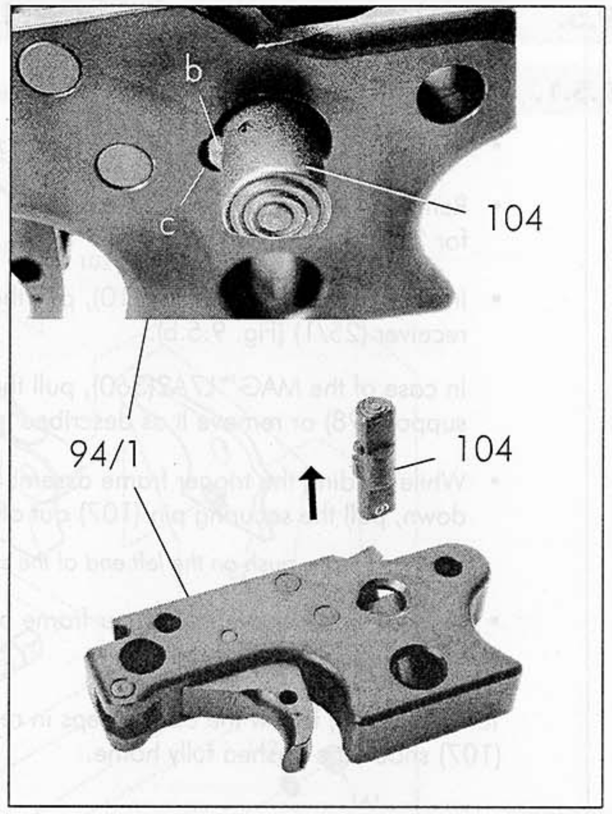


Fig. 9.5.e - Removal of the safety catch (104)

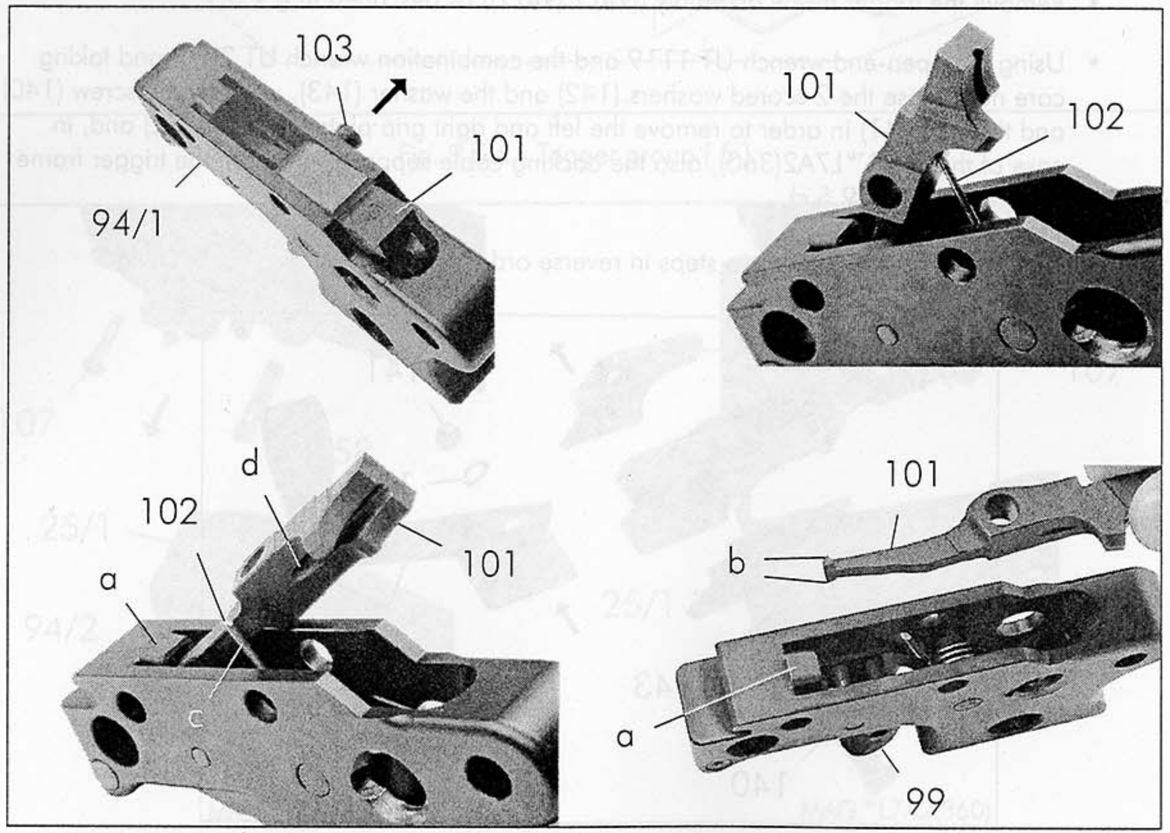


Fig. 9.5.f - Removal of the sear (101)

9.5. TRIGGER GROUP [5] (continued)

9.5.3. Removal and reinstallation of the safety catch (104)

- Remove the trigger frame assembly ((94) / (94/2)) as described in § 9.5.1.
- Remove the grip plates (95/96) and, in case of the MAG™ L7A2(360), also the cocking cable support (98), as described in § 9.5.2.
- Pull the tripping lever (a) of the trigger (99) rearwards so that the rear end of the sear (101) moves away from the safety catch (104) and hold it in that position during the following step (Fig. 9.5.d).
- Turn the safety catch (104) by 90° in the clockwise direction when viewed from the left side in order to align its little protruding part (b) with the notch (c) of its mounting hole in the trigger frame body (94/1) (Fig. 9.5.e).

  As a result, the indications 'F' and 'S' on the safety catch (104) are turned downwards.

- Using a pointed tool such as a drift punch from the right side, push the safety catch (104) out of the left side of the trigger frame body (94/1) (Fig. 9.5.e).

To reassemble, follow the above steps in reverse order, taking into account the following points :

- When reinstalling the safety catch (104), it should be inserted in the trigger frame body (94/1) from the left side and with the indication 'S' first.
- After having fitted the safety catch (104) into the trigger frame body (94/1), turn it by 90° in the counterclockwise direction when viewed from the left side so that the indications 'F' and 'S' are facing rearwards.

9.5.4. Removal and reinstallation of the sear (101)

- Remove the safety catch (104) as described in § 9.5.3.
- Using a pointed tool such as a drift punch, push the pin (103) which secures the sear (101) out of the trigger frame body (94/1) (Fig. 9.5.f).

  Take into account that the sear (101) is subjected to the force of its spring (102).

- Lift the rear part of the sear (101) out of the trigger frame body (94/1) and then turn the sear by 90° in order to be able to separate its front end from the tripping lever (a) of the trigger (99) (Fig. 9.5.f).
- Take the sear (101) out of the trigger (99) and the trigger frame body (94/1) (Fig. 9.5.f).

To reassemble, follow the above steps in reverse order, taking into account the following points :

- When reinstalling the sear (101) (held at an angle of 90°) into the trigger frame body (94/1), it is recommended to pull the tripping lever (a) of the trigger (99) slightly rearwards so that the 2 small protrusions (b) at the front side of the sear can correctly be passed through the tripping lever and hooked into position.
- Ensure that the upper extremity (c) of the sear spring (102) fits correctly into the lower groove (d) of the sear (101).

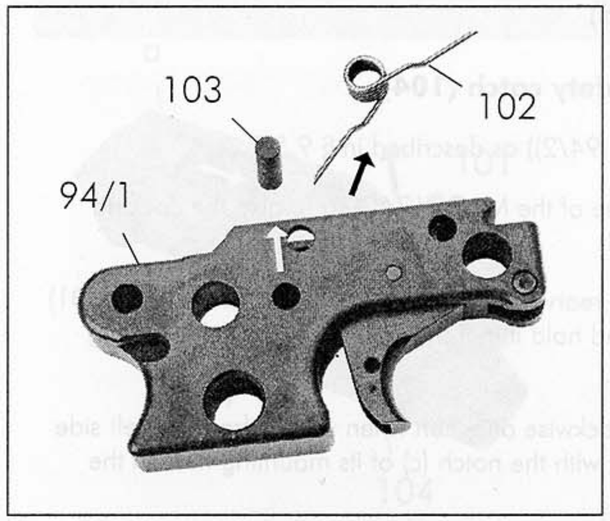


Fig. 9.5.g - Removal of the sear spring (102)

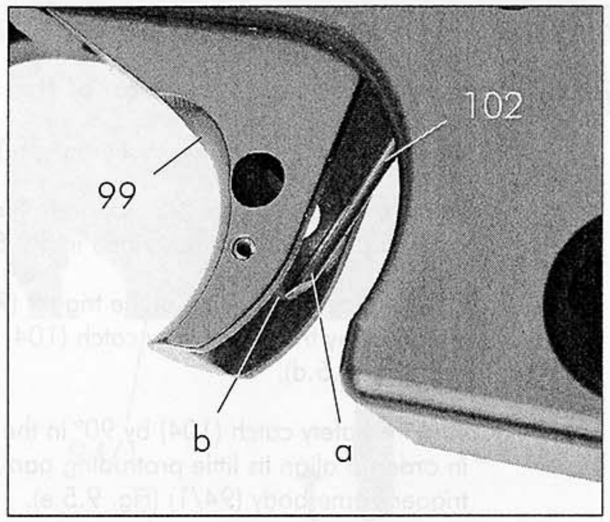


Fig. 9.5.h - Correct installation of the lower extremity (a) of the sear spring (102)

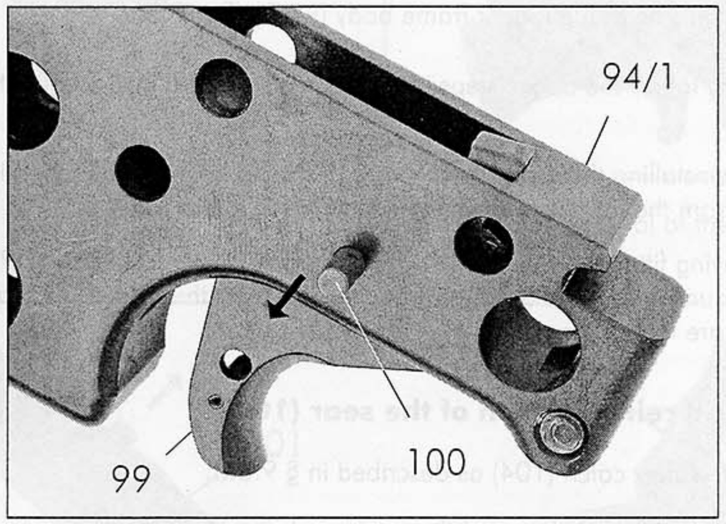


Fig. 9.5.i - Removal of the trigger (99)

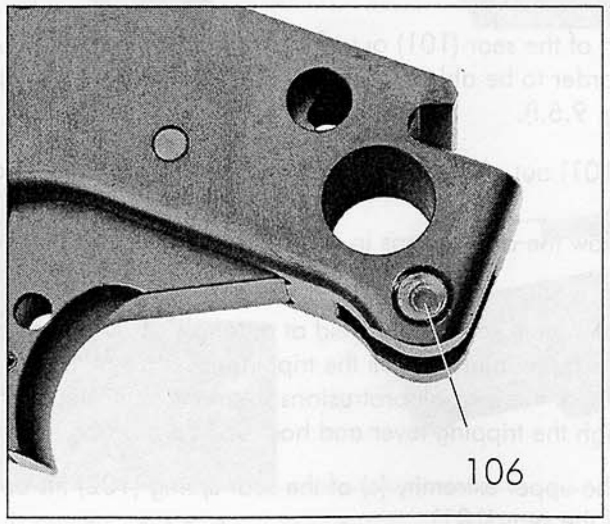


Fig. 9.5.j - Removal of the pin (106)

9.5. TRIGGER GROUP [5] (continued)

9.5.5. Removal and reinstallation of the sear spring (102)

- Remove the sear (101) as described in § 9.5.4.
- Using a pointed tool such as a drift punch, push the pin (103) which secures the sear spring (102) out of the trigger frame body (94/1) (Fig. 9.5.g).
- Take the sear spring (102) out of the trigger frame body (94/1) (Fig. 9.5.g).

To reassemble, follow the above steps in reverse order, taking into account that the lower extremity (a) of the sear spring (102) should be positioned behind the pin (b) of the trigger (99) as shown in Fig. 9.5.h.

9.5.6. Removal and reinstallation of the trigger (99)

- Remove the sear (101) as described in § 9.5.4.
- Remove the sear spring (102) as described in § 9.5.5.
- Using a pointed tool such as a drift punch, push the pin (100) out of the trigger frame body (94/1) (Fig. 9.5.i).
- Take the trigger (99) upwards out of the trigger frame body (94/1) (Fig. 9.5.i).

To reassemble, follow the above steps in reverse order.

9.5.7. Removal and reinstallation of the pin (106)

- Remove the trigger frame assembly ((94) / (94/2)) as described in § 9.5.1.
- Using the drift punch UT 2013 from the right side, drive out the pin (106) (Fig. 9.5.j).

To reassemble, follow the above steps in reverse order.

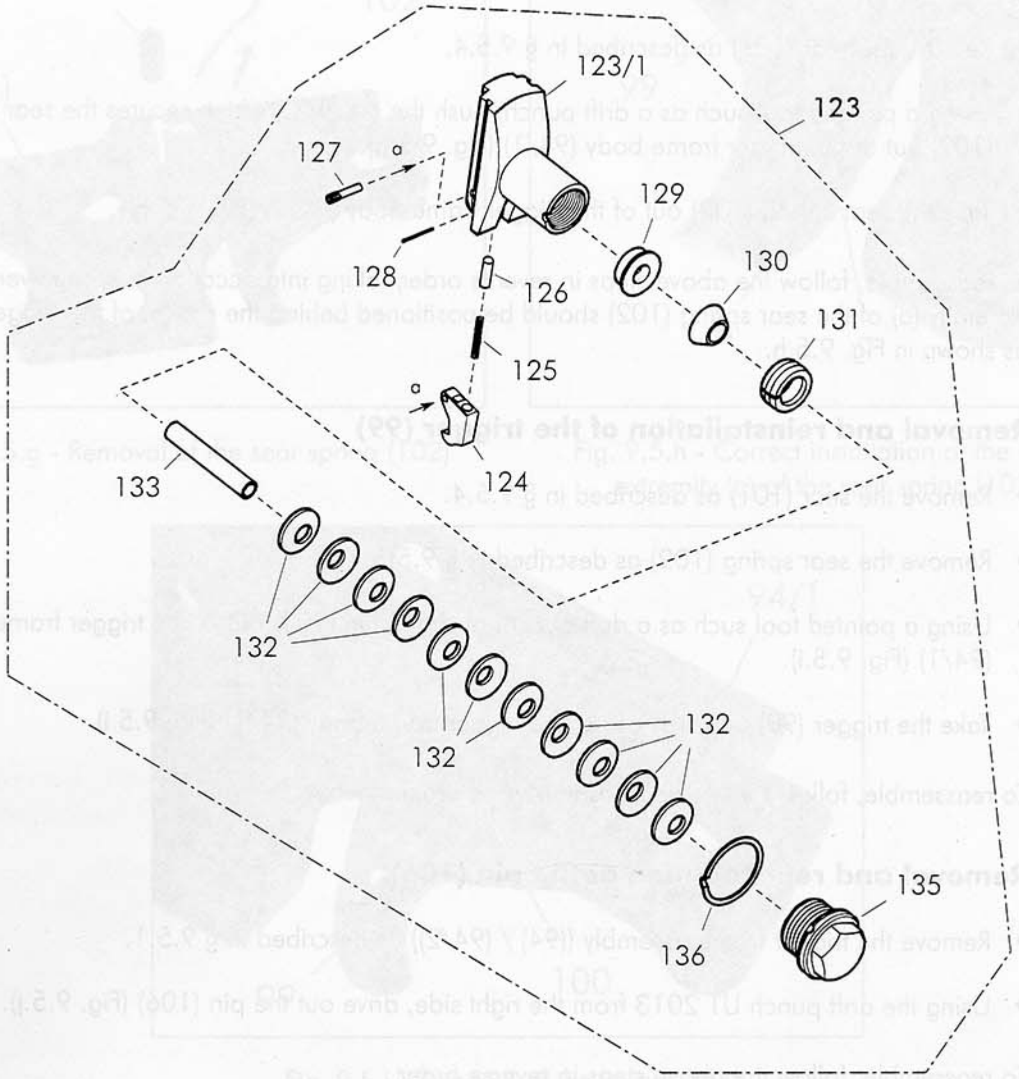


Fig. 9.6.a - Buffer group [6]

9.6. BUFFER GROUP [6] (Fig. 9.6.a)

9.6.1. Removal of the buffer block catch (124), the buffer block catch spring (125), the plunger (126) and the buffer block catch axis (127)

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.

NOTE : In order to facilitate the following disassembling (and reassembling) procedure, the buffer group [6] can be fixed into a vice.

When fixing the buffer group [6] into a vice, it is recommended to use a rag to avoid scratches.

> When carrying out the next step, only drive out the buffer block catch axis (127) from the side opposite to its knurled end.

- Using the drift punch UT 2010 and a hammer from the side opposite to its knurled end, drive out the buffer block catch axis (127) (Fig. 9.6.b).
- While holding the buffer block catch (124) in position with a finger, withdraw the drift punch UT 2010.
- Gently release the pressure on the buffer block catch (124) and then take it, together with its spring (125) and the plunger (126), out of the buffer block (123/1) (Fig. 9.6.c).

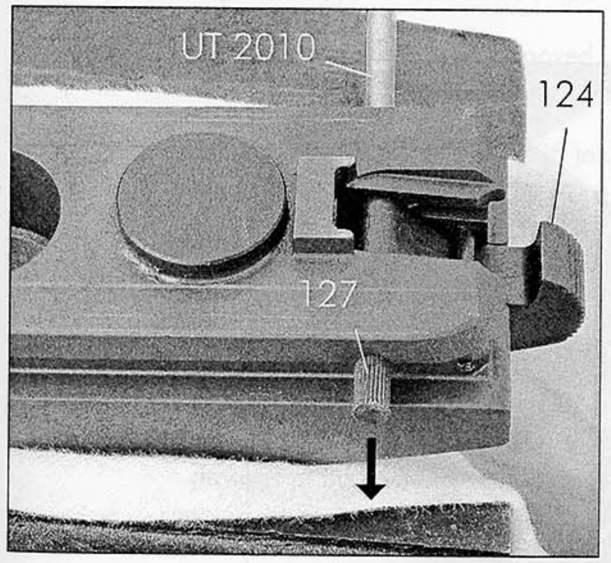


Fig. 9.6.b - Driving out the buffer block catch axis (127)

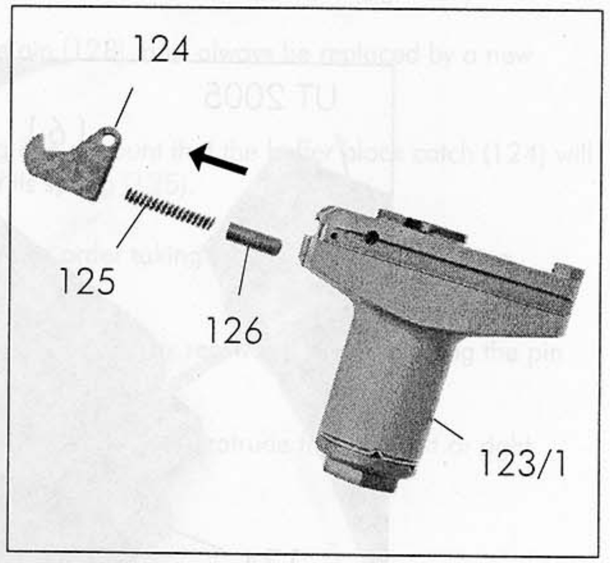


Fig. 9.6.c - Removal of the buffer block catch (124), its spring (125) and the plunger (126)

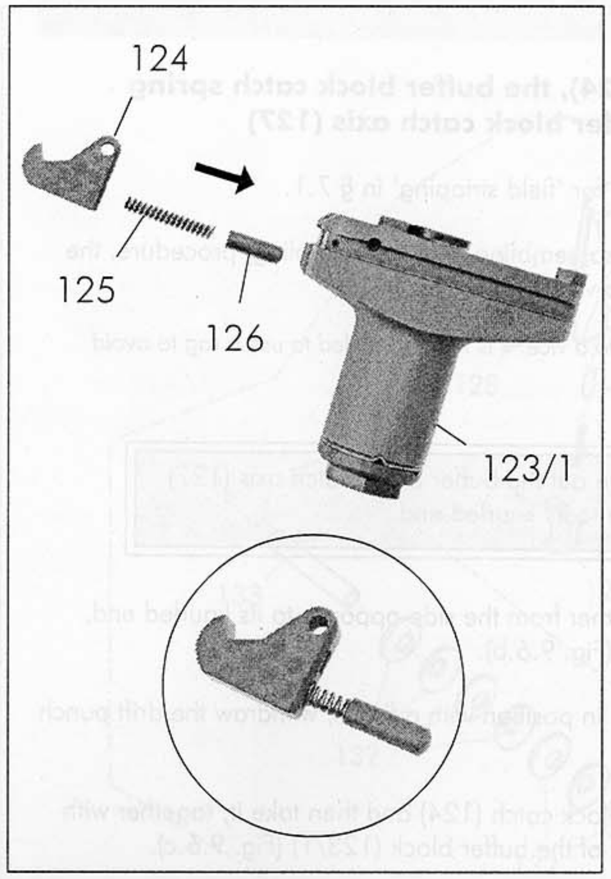


Fig. 9.6.d - Refitting the buffer block catch (124), its spring (125) and the plunger (126) into position

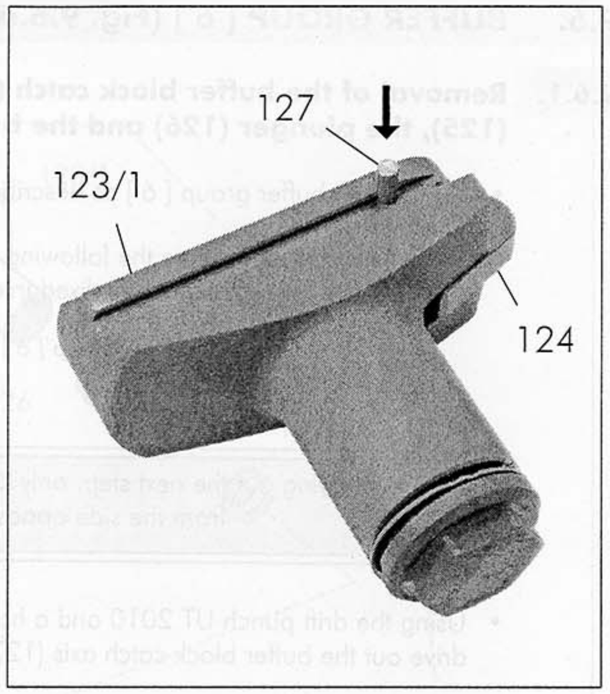


Fig. 9.6.e - Reinstalling the buffer block catch axis (127)

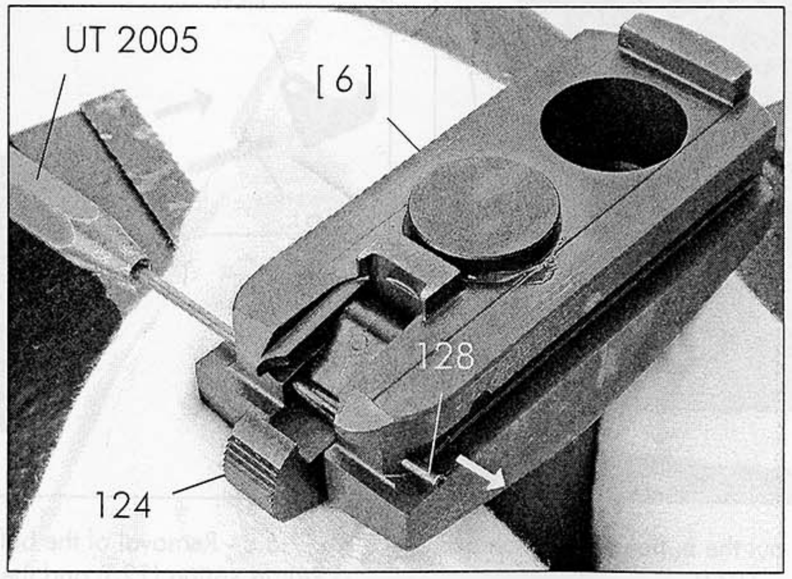


Fig. 9.6.f - Removal of the pin (128)

9.6. BUFFER GROUP [6] (continued)

9.6.2. Reinstallation of the buffer block catch (124), the buffer block catch spring (125), the plunger (126) and the buffer block catch axis (127)

- Fit one end of the buffer block catch spring (125) into its housing in the buffer block catch (124) and then fit the plunger (126) onto the other end of the spring (Fig. 9.6.d).
- Insert this assembly, with the plunger (126) first, into the buffer block (123/1) (Fig. 9.6.d).
- Align the hole in the buffer block catch (124) with the corresponding holes in the buffer block (123/1) and then, from any side, manually insert the buffer block catch axis (127) into the aligned holes (Fig. 9.6.e).

  The buffer block catch axis (127) is positioned correctly when it does not protrude from the left or right grooves of the buffer block (123/1) : use the drift punch UT 2010 and a hammer to position the axis correctly.

- Reinstall the buffer group [6] as described for 'field stripping' in § 7.2.

9.6.3. Removal and reinstallation of the pin (128)

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.

NOTE : In order to facilitate the following disassembling (and reassembling) procedure, the buffer group [6] can be fixed into a vice.

When fixing the buffer group [6] into a vice, it is recommended to use a rag to avoid scratches.

- Using the drift punch UT 2005 and a hammer, drive out the pin (128) (Fig. 9.6.f).

  NOTE : Once it has been removed, the pin (128) must always be replaced by a new one !

- Withdraw the drift punch UT 2005 taking into account that the buffer block catch (124) will move slightly forwards under the force of its spring (125).

To reassemble, follow the above steps in reverse order taking into account the following points :

- The buffer block catch (124) should be pulled slightly rearwards when inserting the pin (128) into the buffer block (123/1).
- The pin (128) should be positioned so that it does not protrude from the left or right grooves of the buffer block (123/1).

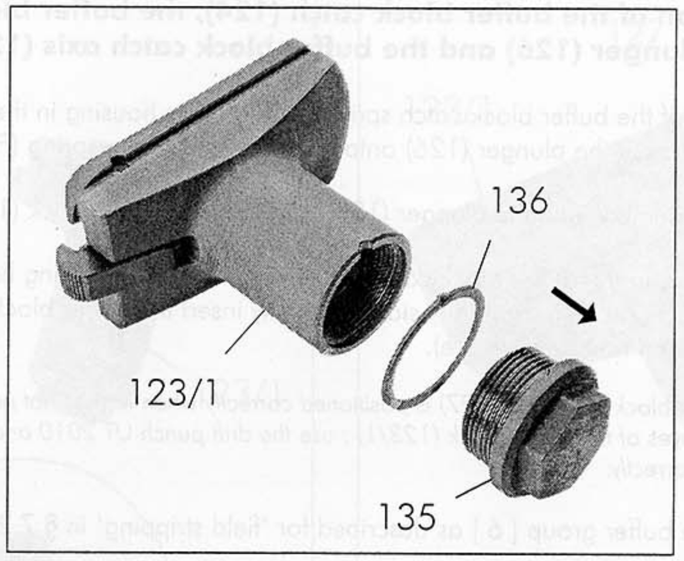


Fig. 9.6.g - Unscrewing the buffer block bush (135) together with the tab washer (136)

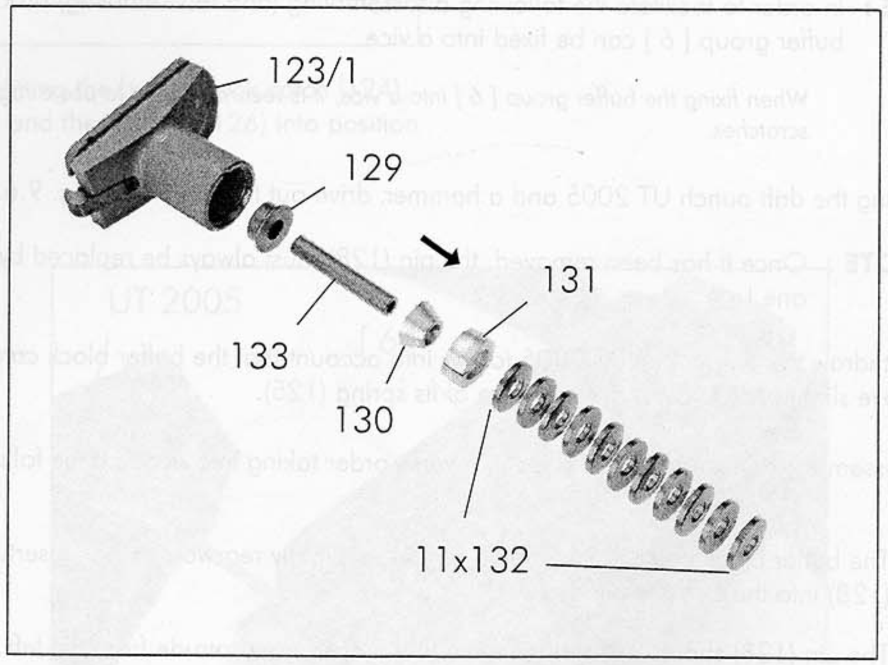


Fig. 9.6.h - Removal of the absorbing components of the buffer block assembly (123)

9.6.4. Removal of the buffer (129), the inner cone (130), the outer cone (131), the 11 Belleville washers (132), the supporting tube (133), the buffer block bush (135) and the tab washer (136)

- Remove the buffer group [6] as described for 'field stripping' in § 7.1.

NOTE : In order to facilitate the following disassembling (and reassembling) procedure, the buffer group [6] can be fixed into a vice.

When fixing the buffer group [6] into a vice, it is recommended to use a rag to avoid scratches.

- Using the OREA 2046, unscrew the buffer block bush (135) and remove it, together with the tab washer (136), from the buffer block (123/1) (Fig. 9.6.g).

NOTE : Once it has been removed, the tab washer (136) must always be replaced by a new one !

- Take the absorbing components out of the rear elongated part of the buffer block (123/1) (Fig. 9.6.h) :
  - The 11 Belleville washers (132)
  - The outer cone (131)
  - The inner cone (130)
  - The supporting tube (133)
  - The buffer (129)

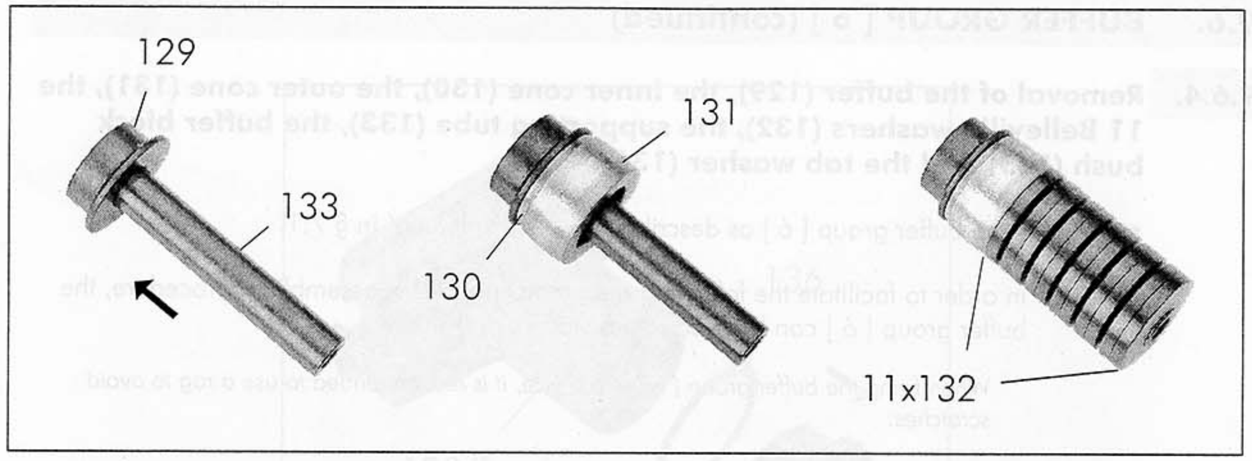


Fig. 9.6.i - Reassembling the absorbing components of the buffer block assembly (123)

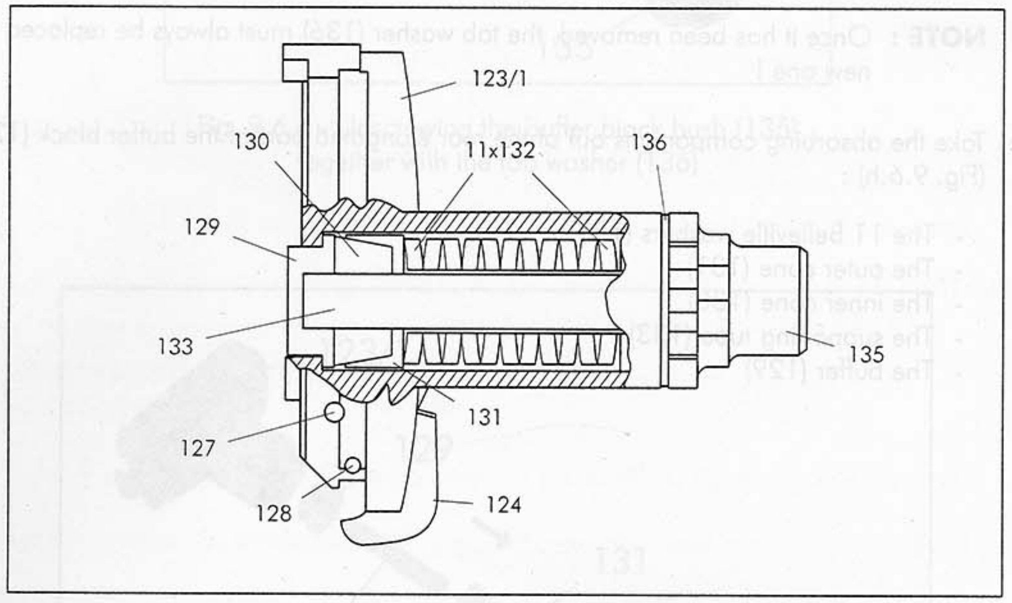


Fig. 9.6.j - Cross-sectional view of the reassembled buffer block assembly (123)

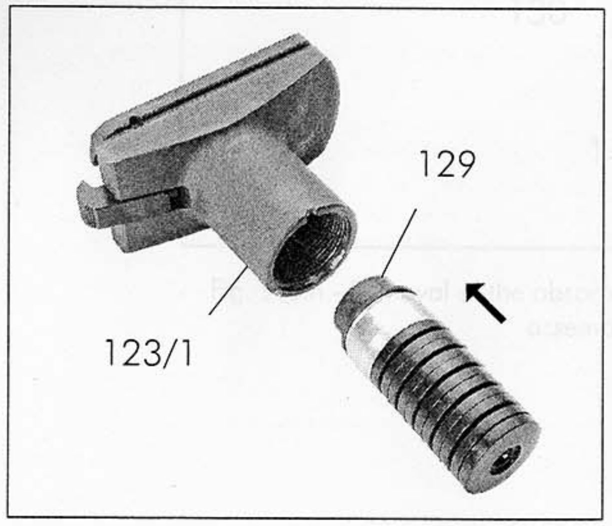


Fig. 9.6.k - Refitting the absorbing components into the buffer block (123/1)

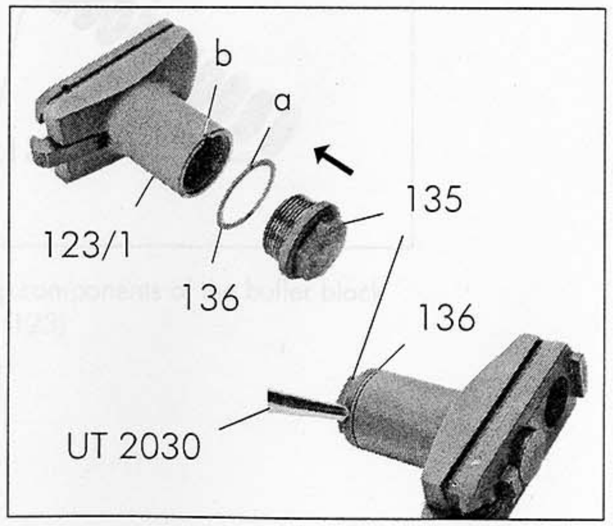


Fig. 9.6.l - Reinstalling the tab washer (136) and the buffer block bush (135)

9.6. BUFFER GROUP [6] (continued)

9.6.5. Reinstallation of the buffer (129), the inner cone (130), the outer cone (131), the 11 Belleville washers (132), the supporting tube (133), the buffer block bush (135) and the tab washer (136)

- Fit the supporting tube (133) into the hole in the rear side of the buffer (129) (Fig. 9.6.i).
- Fit the inner cone (130) onto the supporting tube (133) (Fig. 9.6.i and Fig. 9.6.j).

  The inner cone (130) should be oriented so that its wider end is facing the buffer (129).
- Fit the outer cone (131) onto the supporting tube (133) and the inner cone (130) (Fig. 9.6.i and Fig. 9.6.j).

  The outer cone (131) should be oriented so that its inner oblique surface fits onto the outer oblique surface of the inner cone (130).
- Fit the 11 Belleville washers onto the supporting tube (133) (Fig. 9.6.i and Fig. 9.6.j).

  The first Belleville washer should be oriented so that its concave side faces the outer cone (131), the second washer should be oriented so that its convex side faces the first washer, the third washer should be oriented so that its concave side faces the second washer, and so on ...
- Lubricate the presently obtained assembly and then fit it, with the buffer (129) first, into the rear elongated part of the buffer block (123/1) (Fig. 9.6.k).

  Ensure that the front side of the buffer (129) protrudes from the front side of the buffer block (123/1).
- Take a new tab washer (136) and install it onto the rear side of the buffer block (123/1) (Fig. 9.6.l).

  The tab washer (136) should be oriented so that its bended tab (a) faces towards the front side and engages the corresponding notch (b) provided in the rear end of the buffer block (123/1).
- Screw the buffer block bush (135) onto the rear side of the buffer block (123/1) and then tighten it by using the OREA 2046 (Fig. 9.6.l).
- Using the centre punch UT 2030, push the tab washer (136) into the notch of the buffer block bush (135) in order to secure the latter into position (Fig. 9.6.l).
- Reinstall the buffer group [6] as described for 'field stripping' in § 7.2.

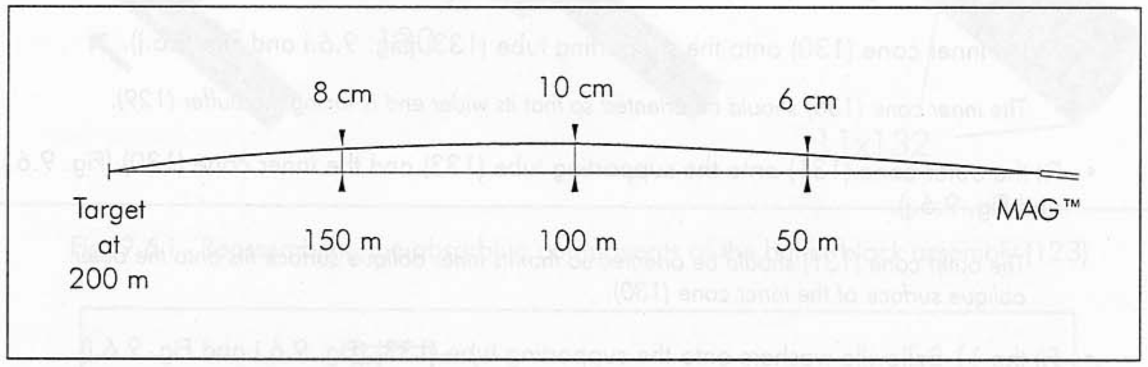


Fig. 10.a - Trajectory of a bullet for a correct firing precision at a distance of 200 m

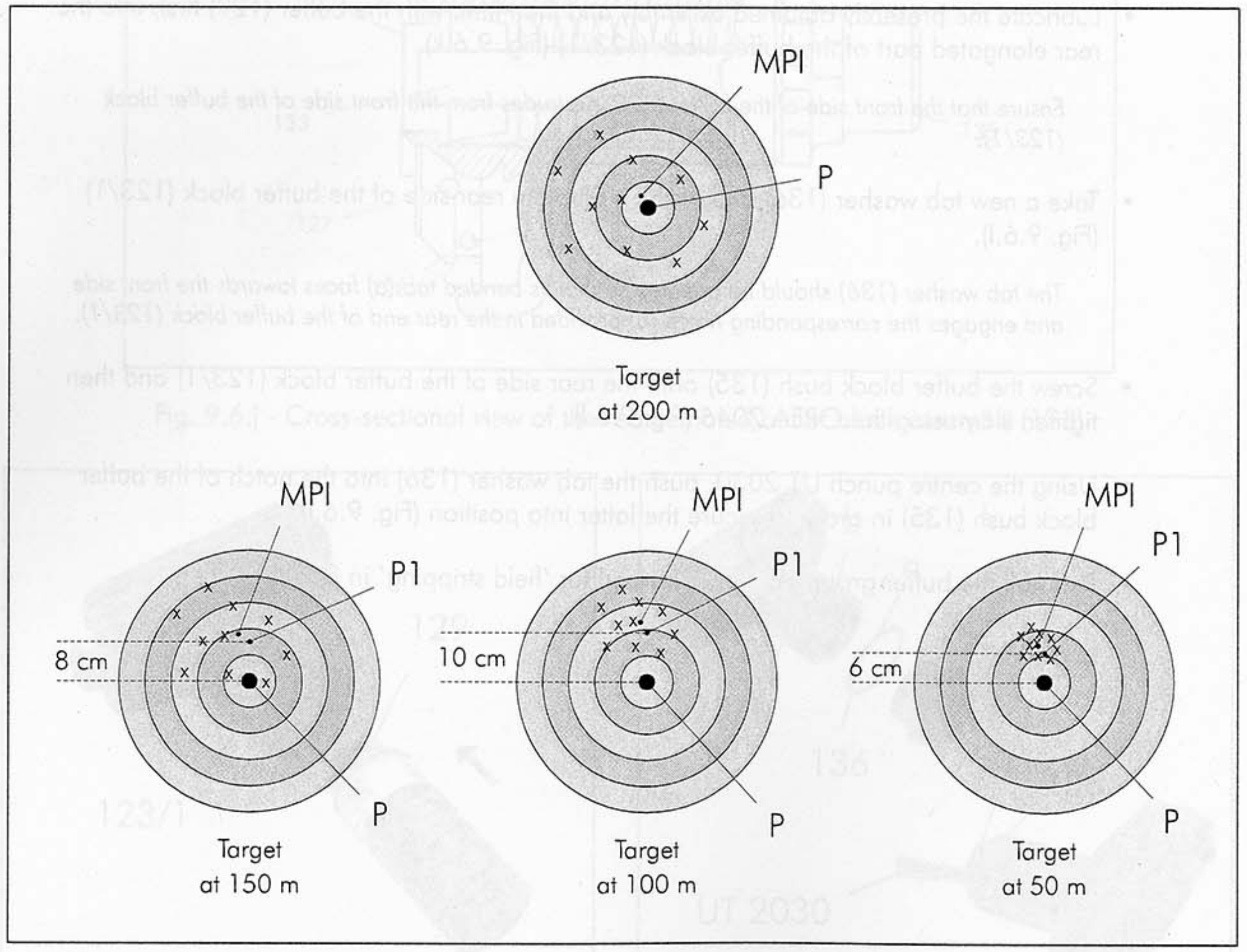


Fig. 10.b - Shooting at a target to check the firing precision

CHAPTER 10 : INSPECTION AND ADJUSTMENTS

Before any intervention on the MAG™ machine gun, ensure to be familiar with the safety information given in chapter 4 of this Maintenance Manual.

Before any inspection or adjustment, ensure that the machine gun is perfectly clean.

10.1. CHECKING THE FIRING PRECISION (Fig. 10.a and Fig. 10.b)

NOTE : In order to increase the accuracy of the following checking procedure, it is important that the machine gun has correctly been mounted into or onto its weapon system.

In any case, eliminate the less accurate impact.

The firing precision should periodically be checked by proceeding as follows :

- Set the safety catch (104) at the (left) position 'F' (fire).
- Set the weapon system for a firing range of '200 m'.

  As a rule, the firing precision of the MAG™ machine gun should be checked on a target located at 200 m.

  This checking procedure can also be carried out on a target located at less than 200 m as long as the necessary corrections are made to compensate for the trajectory of the bullet (Fig. 10.a).

  This checking procedure will therefore explain the corrections to be made for targets located at 50 m, 100 m and 150 m.

- Aim the machine gun at a well-determined point (P) on a safe target.

  Always aim at the point (P), independently of the distance of the target (Fig. 10.a and Fig. 10.b).

- Fire 10 single shots and eliminate the less accurate impact.
- At the target, check if the 10-1 impacts are situated within a square with a side of 120 cm.

  In case of a target located at 50 / 100 / 150 m, the impacts should be situated within a square with a side of 30 / 60 / 90 cm.

  If so, directly proceed to the next step.

  If not, repeat the shooting procedure at least twice.

  If, during these next tries, the 10-1 impacts are still not situated within a square with the appropriate side, this indicates that the barrel (A1) of the machine gun is showing signs of wear : replace the barrel and then restart this checking procedure.

- At the target, determine the mean point of impact (MPI).
- If the MPI corresponds to the point of aim (P) (target at 200 m) or to an imaginary point (P1) (6 / 10 / 8 cm above the point of aim (P) (target at 50 / 100 / 150 m)), the firing precision is correct.

  If not, the firing precision should be adjusted as described for the weapon system into or onto which the machine gun has been mounted.

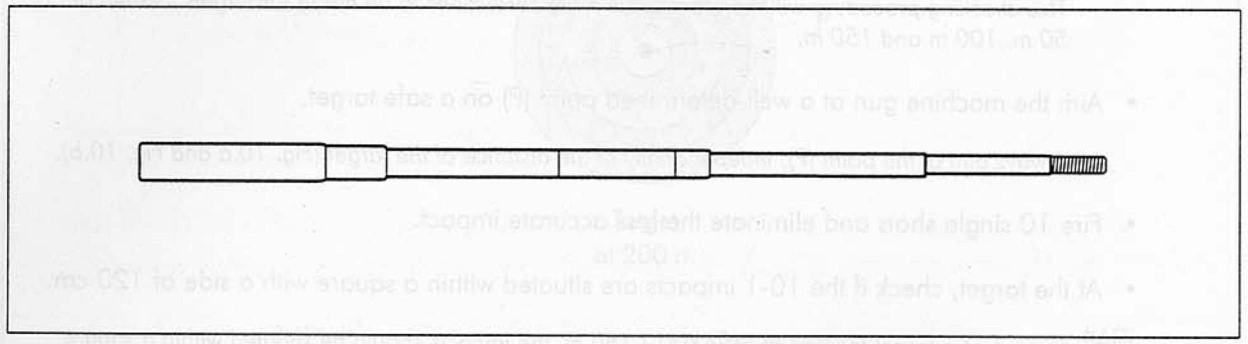


Fig. 10.c - Barrel bore gauge G036

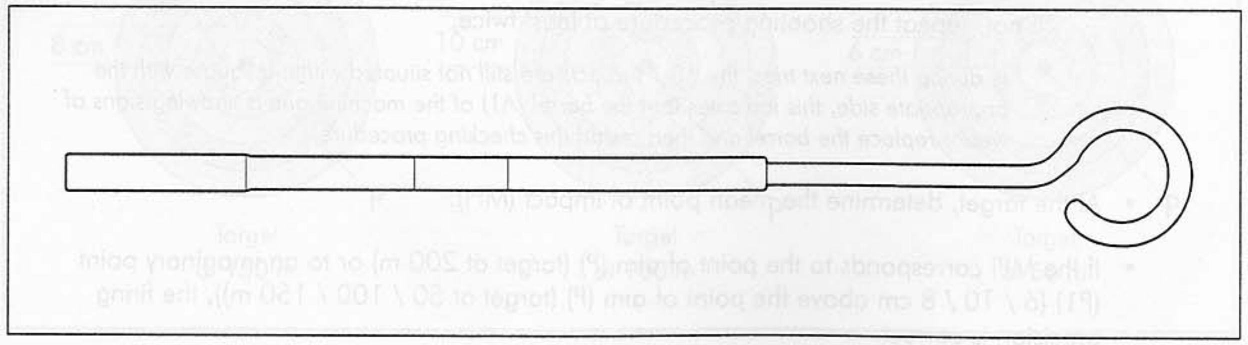


Fig. 10.d - Barrel bore gauge G037

10.2. CHECKING AND GAUGING THE BARREL (A1)

Preparation

- Remove the barrel group [1] as described for 'field stripping' in § 7.1.
- Thoroughly clean and dry the barrel (A1) (refer to chapter 8).
- Carry out a visual inspection of the outside of the barrel (A1).
- Carry out a visual inspection of the bore of the barrel (A1).

Checking the barrel (A1) for keyholing (resulting in elongated impacts on a target)

This checking procedure should only be carried out after the barrel (A1) has been used intensively and/or in case of doubt about its condition.

- Correctly mount the barrel group [1] and load the machine gun.
- Set the safety catch (104) at the position 'F' (fire).
- Aim the machine gun at a safe target located at 25 m and fire 10 single shots.
- At the target, check if the impacts are not too elongated ('keyholed' of 15° or more).

  An impact is keyholed of 15° when its length reaches 11 mm.

  If 20% or more of the impacts are keyholed of 15° or more, the bore of the barrel (A1) shows serious signs of wear : the barrel should be rejected. Otherwise, the barrel is OK.
- Repeat the 'preparation' procedure described above.

Gauging the bore of the barrel (A1)

- From the side of the chamber, insert the barrel bore gauge G036 (Fig. 10.c) into the bore of the barrel (A1) and measure the penetration distance (A') of the gauge into the chamber and the bore of the barrel.
- From the side of the muzzle, insert the barrel bore gauge G036 into the bore of the barrel (A1) and measure the penetration distance (A'') of the gauge into the bore of the barrel.
- Calculate the distance A = A' + A''.
- From the side of the chamber, insert the barrel bore gauge G037 (Fig. 10.d) into the bore of the barrel (A1) and measure the penetration distance (B) of the gauge into the chamber and the bore of the barrel.
- If A < 90 mm **and** B < 75 mm, the condition of the barrel (A1) is correct.

  If 90 mm ≤ A < 115 mm **or** 75 mm ≤ B < 95 mm, the barrel (A1) shows signs of wear and should be replaced as soon as possible.

  If A ≥ 115 mm **or** B ≥ 95 mm, the barrel (A1) is worn and should be rejected.

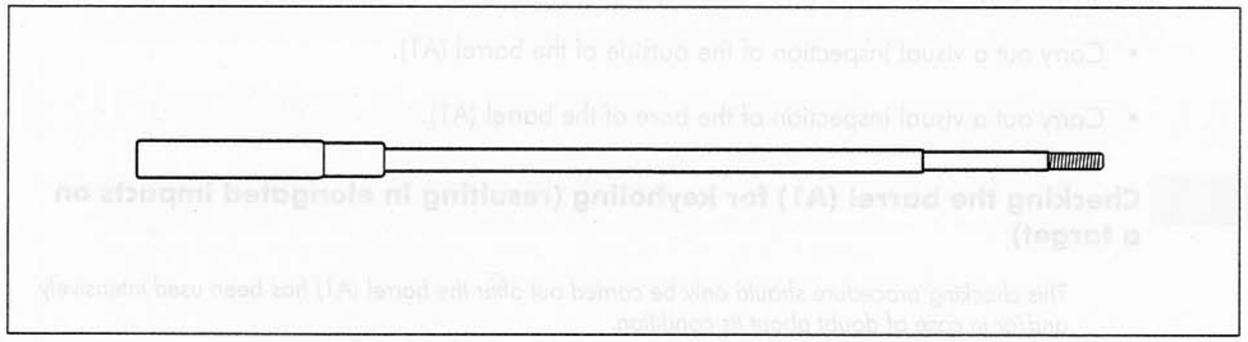


Fig. 10.e - Barrel bore gauge G033

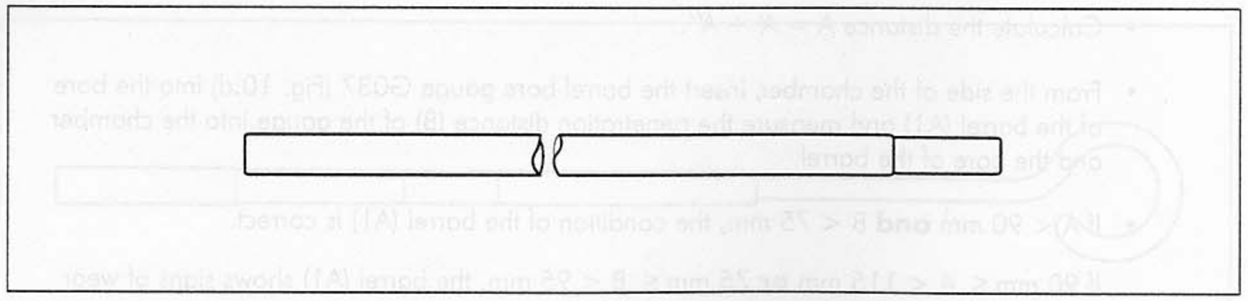


Fig. 10.f - Barrel straightness gauge G048

10.2. CHECKING AND GAUGING THE BARREL (A1) (continued)

Checking the barrel (A1) for coppering

This checking procedure should be carried out to check the bore of the barrel (A1) for excessive copper deposit.

- Insert the barrel bore gauge G033 (Fig. 10.e) into the chamber of the barrel (A1) and ensure that it is able to pass from one end of the bore of the barrel to the other.
- If so, the bore is not subjected to excessive coppering.

If not, the copper fouling inside the bore of the barrel (A1) should be removed by carrying out the following chemical procedure :

- Prepare the following solution :
  Distilled water H_2O : 336 cm^3
  Ammonium persulphate : 84 g
  Ammonium carbonate : 42 g
  Ammonia : 528 cm^3
- Remove the gas regulator assembly securing ring (22) and the gas regulator plug (6) from the barrel (A1) as described for 'field stripping' in § 7.1.
- Ensure that the bore of the barrel (A1) is perfectly clean and dry.
- At the side of the chamber, seal the barrel (A1) by using a rubber plug and, at the gas regulator, seal the gas inlet opening by using a piece of wood or a small rubber plug.
- Fix the barrel (A1) vertically into a vice, with its muzzle pointing upwards.

  When fixing the barrel (A1) into a vice, use a rag to avoid scratches.
- Completely fill the barrel (A1) with the solution prepared above.
- Wait 20-30 minutes, remove the barrel (A1) from the vice and then pour the solution from the barrel into a flask or a clear glass : the solution will be tinted blue due to the presence of copper salt.
- Repeat the 3 previous steps until the solution coming out of the barrel (A1) is no longer tinted blue but keeps its original colour.

  When the solution keeps its original colour, the bore of the barrel (A1) is considered being free from copper deposits.
- Remove the sealings, thoroughly clean and dry the barrel (A1) in order to remove any trace of the solution (refer to chapter 8) and then reassemble the barrel group [1].

Checking the straightness of the barrel (A1)

- Hold the barrel group [1] upright, insert the barrel straightness gauge G048 (Fig. 10.f) into the bore of the barrel (A1) and then ensure that the gauge is able to pass from one end of the bore to the other by its own weight.

  The gauge should be catched when it comes out of the barrel (A1) !
- If so, the straightness of the barrel (A1) is correct.

  If not, the barrel (A1) should be rejected.

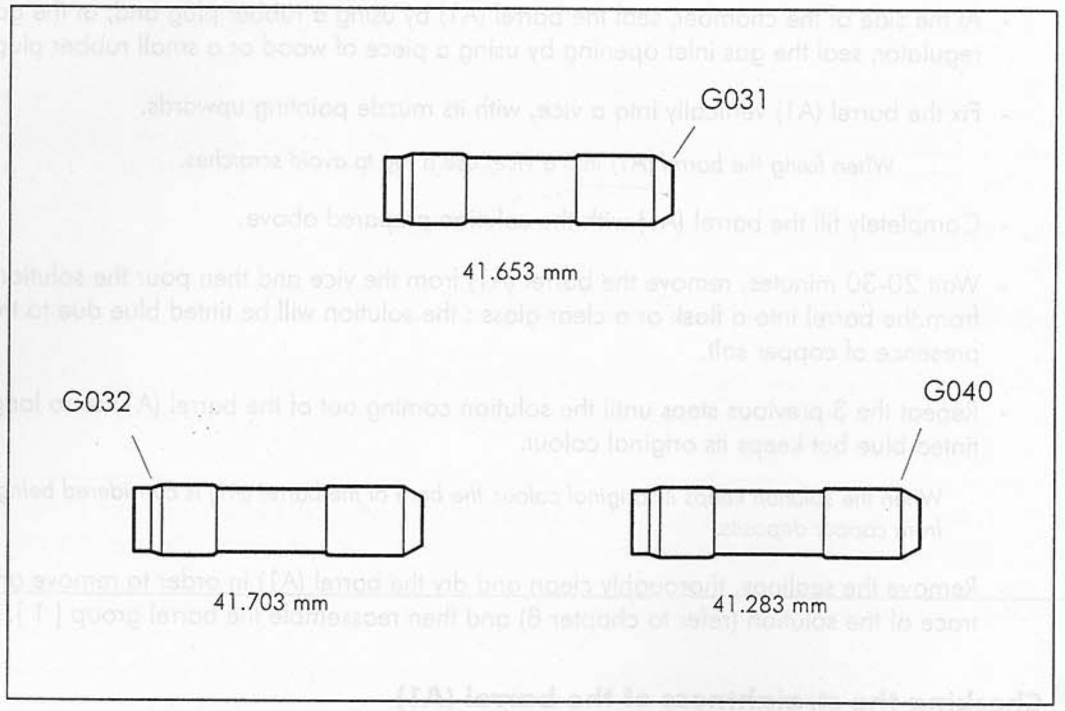


Fig. 10.g - Headspace gauges G031, G032 and G040

10.3. CHECKING AND GAUGING THE HEADSPACE

With a cartridge present in the chamber of the barrel (A1), the headspace is the distance between the bottom of the housing for the cartridges in the front face of the breech block body (D1) and a particular point on the front part of the cartridge case.

This distance is very important as it determines if the weapon functions correctly and in all safety.

Besides the periodic inspections, the headspace should also be checked and gauged after each intervention (removal, replacement, disassembling, ...) on the barrel group [1] and/or on the moving parts group [4]. It is especially important to check and gauge the headspace after having replaced the barrel nut (19).

The checking and gauging procedure consists of checking the locking of the breech with different headspace gauges inserted into the chamber.

Checking procedure

- Remove the buffer group [6] and the return spring assembly (45) as described for 'field stripping' in § 7.1.
- Manually pull the moving parts assembly (31) slightly rearwards.
- Remove the barrel group [1] as described for 'field stripping' in § 7.1.

NOTE : Before continuing, ensure that the housing for the cartridges in the front face of the breech block body (D1) as well as the chamber are perfectly clean.

- Taking into account that its notch should be at the upper, rear side, insert the 'minimum workshop' headspace gauge G040 (Fig. 10.g) into the chamber.

  Please note that the notch in the headspace gauge has been provided for the ejector (41) which slightly protrudes from the front face of the breech block body (D1).

- Carefully reinstall the barrel group [1] and lock it into position as described for 'field stripping' in § 7.2.
- Manually push the moving parts assembly (31) forwards and exert a light pressure in order to check if the breech locks correctly.
- Manually pull the moving parts assembly (31) slightly rearwards.

  If the breech is locked, more force will be required as if the breech did not lock.

- Remove the barrel group [1] and take the 'minimum workshop' headspace gauge G040 out of the chamber.
- Repeat the above procedure for the 'service, warning' headspace gauge G031 and for the 'service, reject' headspace gauge G032.

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10.3. CHECKING AND GAUGING THE HEADSPACE (continued)

After the checking procedure

- The headspace is correct when the 3 following conditions are fulfilled :
  - The 'minimum workshop' headspace gauge G040 should always allow a correct locking of the breech.
  - The 'service, warning' headspace gauge G031 should not allow the breech to lock.

    If the 'service, warning' headspace gauge G031 allows the breech to lock, the machine gun may only be used if it is absolutely necessary.
  - The 'service, reject' headspace gauge G032 should never allow the breech to lock.

    If the 'service, reject' headspace gauge G032 allows the breech to lock, it is forbidden to use the machine gun.
- If there is a problem, successively carry out the following steps :
  - Check if the problem is solved by replacing the barrel group [1] by a new one.

    If so, the old barrel group [1] is worn or deteriorated and should be rejected.

    If not, proceed to the following step.

    Please note that, when replacing the barrel group [1] by a new one, it will be necessary to check the firing precision (refer to § 10.1).
  - Check if the problem is solved after a thorough cleaning and inspection of the moving parts assembly (31).

    If so, the procedure is terminated

    If not, proceed to the following step.
  - Check if the problem is solved by replacing the breech block assembly (32) (or, if preferred, the moving parts assembly (31)) by a new one.

    If so, the old breech block assembly (32) (or moving parts assembly (31)) is worn or deteriorated and should be rejected.

    If not, proceed to the following step.

    Please note that, when replacing the breech block assembly (32) (or the moving parts assembly (31)) by a new one, it will be necessary to check and gauge the extractor (35) (refer to § 10.4) and the firing pin (39) (refer to § 10.5).
  - Replace the receiver (25/1) (or, if preferred, the complete receiver group [2]).

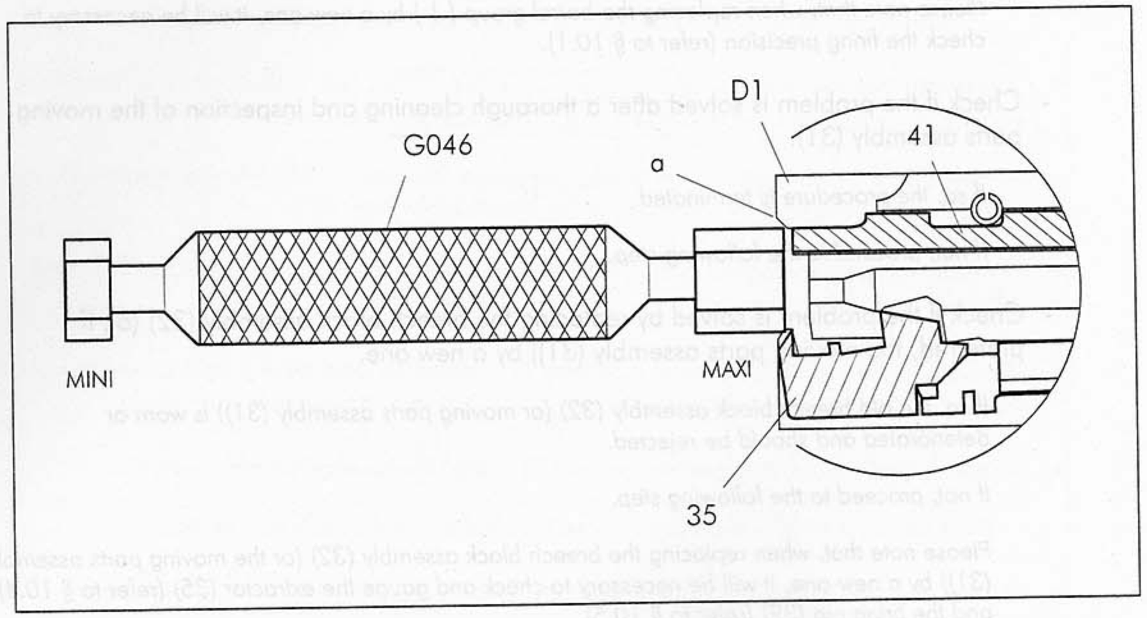

Fig. 10.h - Checking the engagement of the extractor (35)

10.4. CHECKING AND GAUGING THE EXTRACTOR (35)

Besides the periodic inspections, the extractor (35) should also be checked and gauged after each intervention (removal, disassembling, ...) on it.

The checking and gauging procedure for the extractor (35) consists of checking its engagement and its axial clearance.

NOTE : Before carrying out the following checking and gauging procedure, ensure that the housing for the cartridges in the front face of the breech block body (D1) as well as the extractor (35) are perfectly clean.

Checking and gauging the engagement of the extractor (35)

The engagement of the extractor (35) represents its ability to hold the cartridge in place after the latter has reached the bottom of its housing in the front face of the breech block body (D1).

Proceed as follows :

- Remove the moving parts group [4] as described for 'field stripping' in § 7.1.
- Using the extractor engagement gauge G046, check the engagement of the extractor (35) by proceeding as follows (Fig. 10.h) :
  - Present the flat surface of the MAXI end of the gauge, with its notch facing upwards, before the front face of the breech block body (D1).

    The notch should be positioned in front of the ejector (41) so that the latter will not hinder the following check.
  - Push the gauge towards the front face of the breech block body (D1).
  - Repeat this procedure for the MINI end of the gauge.

  The engagement of the extractor (35) is correct if the MAXI end of the gauge is held back (by the point 'a' of the breech block body (D1) and by the claw of the extractor) **and** the MINI end of the gauge can reach the front face of the breech block body without actuating the extractor.

  In such a case, directly proceed to 'Checking and gauging the axial clearance of the extractor (35)'.

  The engagement of the extractor (35) is incorrect if the MAXI end of the gauge can reach the front face of the breech block body (D1) **or** the MINI end can only reach the front face by actuating the extractor.

  In such a case, the extractor (35), its plunger (36) and/or its spring (37) should be replaced.

  For more information about the removal and the reinstallation of the extractor (35), its plunger (36) and its spring (37), refer to § 9.4.2.

  After having replaced the extractor (35), its plunger (36) and/or its spring (37), this checking and gauging procedure should be repeated.
- Proceed to 'Checking and gauging the axial clearance of the extractor (35)'.

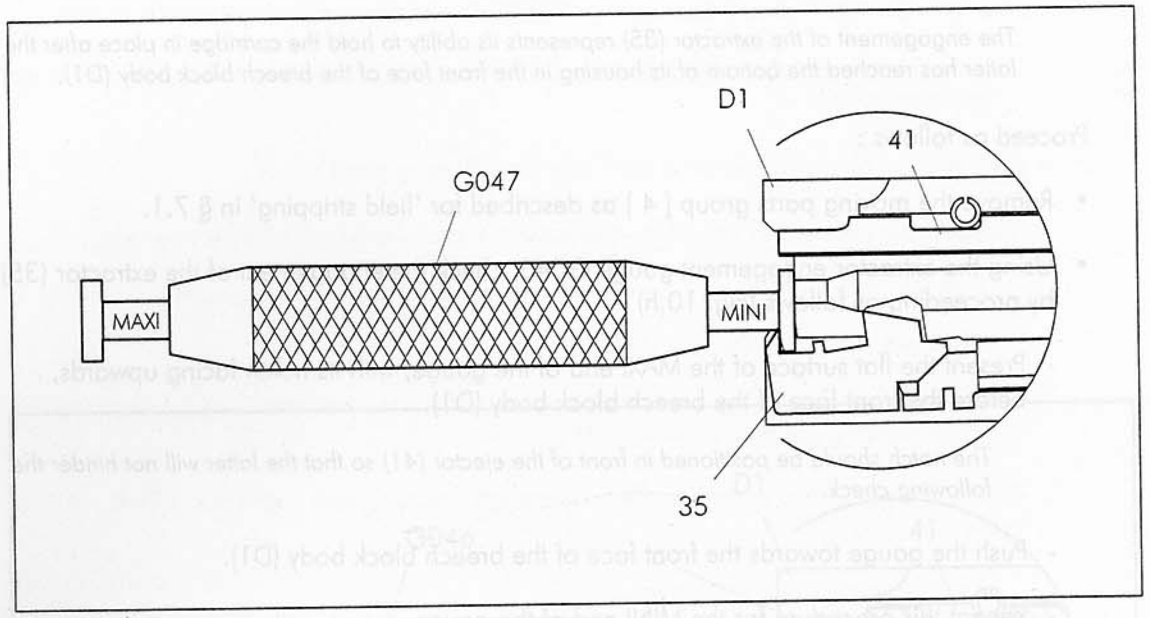

Fig. 10.i - Checking the axial clearance of the extractor (35)

10.4. CHECKING AND GAUGING THE EXTRACTOR (35) (continued)

Checking and gauging the axial clearance of the extractor (35)

The axial clearance of the extractor (35) is the distance between the tip of the claw of the extractor and the bottom of the housing for the cartridges in the front face of the breech block body (D1).

The distance represents the available space into which the rim of the cartridge case can fit.

Proceed as follows :

- If not already done, remove the moving parts group [4] as described for 'field stripping' in § 7.1.
- Using the extractor axial clearance gauge G047, check the axial clearance of the extractor (35) by proceeding as follows (Fig. 10.i) :
  - Press the flat surface of the MINI end of the gauge correctly against the bottom of the housing for the cartridges in the front face of the breech block body (D1).
  - Taking care to maintain full contact between the flat surface of the gauge and the bottom of the housing for the cartridges in the front face of the breech block body (D1), rotate the gauge towards the claw of the extractor (35).
  - Repeat this operation for the MAXI end of the gauge.

  The axial clearance of the extractor (35) is correct if the lug on the MINI end of the gauge can pass between the claw of the extractor (35) and the front face of the breech block body (D1) **and** the MAXI end of the gauge cannot pass between them.

  In such a case, directly proceed to the following step.

  The axial clearance of the extractor (35) is incorrect if the lug on the MINI end of the gauge cannot pass between the claw of the extractor (35) and the front face of the breech block body (D1) **or** the MAXI end of the gauge can pass between them.

  In such a case, the extractor (35), its plunger (36) and/or its spring (37) should be replaced.

  For more information about the removal and the reinstallation of the extractor (35), its plunger (36) and its spring (37), refer to § 9.4.2.

  After having replaced the extractor (35), its plunger (36) and/or its spring (37), this checking and gauging procedure should be repeated.

- Reinstall the moving parts group [4] as described for 'field stripping' in § 7.2.

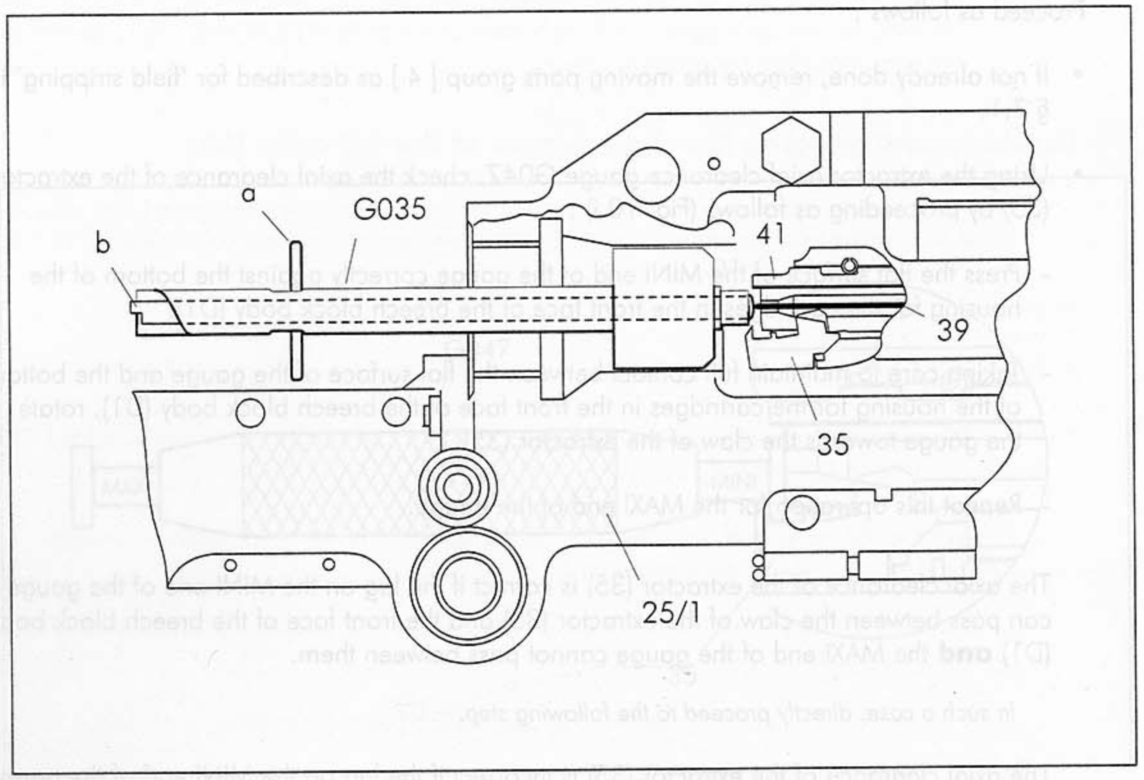

Fig. 10.j - Checking the protrusion of the firing pin (39)

10.5. CHECKING AND GAUGING THE FIRING PIN (39)

Besides the periodic inspections, the firing pin (39) should also be checked and gauged after each intervention (removal, disassembling, ...) on it.

The checking and gauging procedure for the firing pin (39) consists of checking its protrusion.

The protrusion of the firing pin (39) is the distance the front tip of the firing pin (39) protrudes from the bottom of the housing for the cartridges in the front face of the breech block body (D1) when the piston assembly (31/1) reaches its most forward position after the breech has been locked.

As explained in § 3.4.1, the "breech is locked" when, during the forward movement of the moving parts, the rear end of the locking lever of the breech block assembly (32) is at its lowest position, in front of the locking shoulder provided inside the receiver (25/1).

NOTE : Before carrying out the following checking and gauging procedure, ensure that the housing for the cartridges in the front face of the breech block body (D1) is perfectly clean.

Proceed as follows :

- Remove the barrel group [1] as described for 'field stripping' in § 7.1.
- Using the firing pin protrusion gauge G035, check the protrusion of the firing pin (39) by proceeding as follows (Fig. 10.j) :
  - From the front side, insert the larger end of the gauge into the housing of the barrel group [1].
  - Using the 2 transversal pins (a), pull the outer part of the gauge completely towards the rear side.

    At the same time and at the front side of the gauge, check the protrusion of the front end (b) of its inner part.

  The protrusion of the firing pin (39) is correct if the protrusion of the front end (b) of the inner part of the gauge is situated between the MIN and MAX marks on the gauge.

  This corresponds to a protrusion of the firing pin (39) of 0.74 ± 0.15 mm

  If its protrusion is incorrect, the firing pin (39) should be replaced.

  For more information about the removal and the reinstallation of the firing pin (39), refer to § 9.4.4.

  After having replaced the firing pin (39), this checking and gauging procedure should be repeated.

- Reinstall the barrel group [1] as described for 'field stripping' in § 7.2.

CHAPTER 11 : TROUBLESHOOTING

> Before any intervention on the MAG™ machine gun, ensure to be familiar with the safety information given in chapter 4 of this Maintenance Manual.

11.1. THE GUN DOES NOT FIRE CORRECTLY WHEN THE TRIGGER (99) IS PULLED

The following procedures will normally solve almost all the problems which are not caused by the breakage of parts.

First try if the problem can be solved by procedure 1. If not, try procedure 2. If the problem is still not solved, try procedure 3.

If the 3 procedures do not solve the problem, check if none of the typical problems given in § 11.2 has occurred.

If the problem is still not solved, the gun should be restricted for further use and examined by a qualified armourer.

Procedure 1

- Pointing it in a safe direction, cock the machine gun.

  In case of the MAG™L7A2(310), proceed as described for the weapon system into which the machine gun is incorporated.

  In case of the MAG™L7A2(360), pull the cocking cable (51) completely rearwards and release it.

  After having cocked the machine gun, ensure that the moving parts are held back at their rear position.

  If not, check the condition and the operation of all the components of the trigger group [5] and especially of the sear (101) and its spring (102).
- Set the safety catch (104) at the (right) position 'S' (safe).
- Remove the ammunition belt and ensure that the feed tray (56) as well as the chamber are empty as described in § 6.4.
- Set the safety catch (104) at the (left) position 'F' (fire).
- Pointing it in a safe direction, decock the machine gun by pulling the trigger (99).
- Ensure that the inside of the machine gun is not excessively soiled (sand, mud, ...).
- Recock the machine gun.
- Place the ammunition belt back onto the feed tray (56) and ensure that the first cartridge is positioned correctly (also refer to § 6.2).
- Close the feed cover assembly (55).
- Pointing it in a safe direction, try if the machine gun now fires correctly when the trigger (99) is pulled.

  If not, try if the problem can be solved by carrying out procedure 2.

Procedure 2

- Pointing it in a safe direction, cock the machine gun.
- Set the safety catch (104) at the (right) position 'S' (safe).
- Open the feed cover assembly (55) by using its catches (74) and remove the ammunition belt.
- Set the safety catch (104) at the (left) position 'F' (fire).
- Pointing it in a safe direction, decock the machine gun by pulling the trigger (99).
- Set the machine gun for a higher firing rate by changing the orientation of the gas regulator plug (6) (refer to § 7.2).
- Recock the machine gun.
- Place the ammunition belt back onto the feed tray (56) and ensure that the first cartridge is positioned correctly (also refer to § 6.2).
- Close the feed cover assembly (55).
- Pointing it in a safe direction, try if the machine gun now fires correctly when the trigger (99) is pulled.

  If not, try if the problem can be solved by carrying out procedure 3.

Procedure 3

- Pointing it in a safe direction, cock the machine gun.
- Set the safety catch (104) at the (right) position 'S' (safe).
- Open the feed cover assembly (55) by using its catches (74) and remove the ammunition belt.
- Set the safety catch (104) at the (left) position 'F' (fire).
- Pointing it in a safe direction, decock the machine gun by pulling the trigger (99).
- Recock the machine gun.
- Replace the barrel group [1] by another one.
- Place the ammunition belt back onto the feed tray (56) and ensure that the first cartridge is positioned correctly (also refer to § 6.2).
- Close the feed cover assembly (55).
- Pointing it in a safe direction, try if the machine gun now fires correctly when the trigger (99) is pulled.

11.2. TYPICAL PROBLEMS

Check if there is		If so, refer to the problem ....
an empty cartridge case in the chamber	--->	• Problem during the extraction operation • Short recoil of the moving parts
a cartridge in the chamber	--->	• Problem during the ignition operation • Failure to lock
an empty cartridge case jammed in the feed mechanism	--->	• Problem during the ejection operation • Short recoil of the moving parts
a cartridge jammed in the feed mechanism	--->	• Problem during the feeding operation • Short recoil of the moving parts • Failure to lock • Problem with the ammunition belt

Problem		Cause		Solution
Problem with the ammunition belt	--->	• Incorrectly assembled ammunition belt	--->	Use a correctly assembled ammunition belt
		• Damaged cartridge(s) and/or link(s)	--->	Remove the corresponding cartridge(s) and link(s) from the ammunition belt
Problem during the extraction operation	--->	• Broken, worn or deformed extractor claw	--->	Replace the extractor (35)
The empty cartridge case is not extracted from the chamber		• Weak or broken extractor spring (37)	--->	Replace the extractor spring (37)
		• Incorrect operation of the extractor (35)	--->	Check and gauge the extractor (35) as described in § 10.4.
		• Soiling, oxidation or scratches in the chamber	--->	Clean the chamber. If necessary, replace the barrel (A1)
		• Insufficient gas pressure	--->	Set the machine gun for a higher firing rate

11.2. TYPICAL PROBLEMS (continued)

Problem		Cause		Solution
Problem during the ignition operation	--->	• Broken, worn or deformed firing pin (39)	--->	Replace the firing pin (39)
The shot does not go off : the cartridge is in the chamber but is not fired		• Incorrect operation of the firing pin (39)	--->	Check and gauge the firing pin (39) as described in § 10.5.
		• Defective cartridge	--->	Remove the cartridge
Problem during the ejection operation	--->	• Broken, worn or deformed ejector (41)	--->	Replace the ejector (41)
The empty cartridge case is not ejected		• Weak or broken ejector spring (43)	--->	Replace the ejector spring (43)
		• Insufficient gas pressure	--->	Set the machine gun for a higher firing rate
		• Problem related to the extractor (35)	--->	Proceed to 'Problem during the extraction operation'
Problem during the feeding operation	--->	• Problem related to the ammunition belt	--->	Proceed to 'Problem with the ammunition belt'
The cartridge does not enter the chamber		• Broken, worn or deformed pawl(s) of the feed pawls assembly (65)	--->	Replace the feed pawls assembly (65)
		• Weak or broken inner pawl spring(s) (65BD)	--->	Replace the inner pawl springs (65BD)
		• Weak or broken outer pawl spring(s) (65AE)	--->	Replace the outer pawl springs (65AE)
Short recoil of the moving parts	--->	• Insufficient gas pressure	--->	Set the machine gun for a higher firing rate
		• Soiling inside the receiver (25/1) or soiled moving parts group [4]	--->	Clean
		• Functional problem of the moving parts group [4]	--->	Check the condition and the operation of all the components of the moving parts group [4]

11.2. TYPICAL PROBLEMS (continued)

Problem	Cause	Solution
Failure to lock --->	• Soiling inside the receiver (25/1) or soiled moving parts group [4] --->	Clean
	• Part of a ruptured cartridge case remaining in the chamber preventing the correct entry of the following cartridge --->	Check if the chamber can be emptied by cocking the machine gun If not, remove the barrel group [1] and then, by using the OREA 96, remove the remaining part of the ruptured cartridge case out of the chamber *Open the OREA 96 and fit its pointed part (a), from the rear side, into the cartridge case (b) until the shoulder (c) of the tool comes into contact with the rear end of the barrel (A1). After that, turn the tool in the clockwise direction in order to engage its teeth (d) into the cartridge case and then pull the tool together with the cartridge case out of the barrel.* *Before carrying out this operation, ensure that the barrel is not too heated in order to eliminate any risk for cook-off (unexpected firing of a round caused by the transmission of heat)*

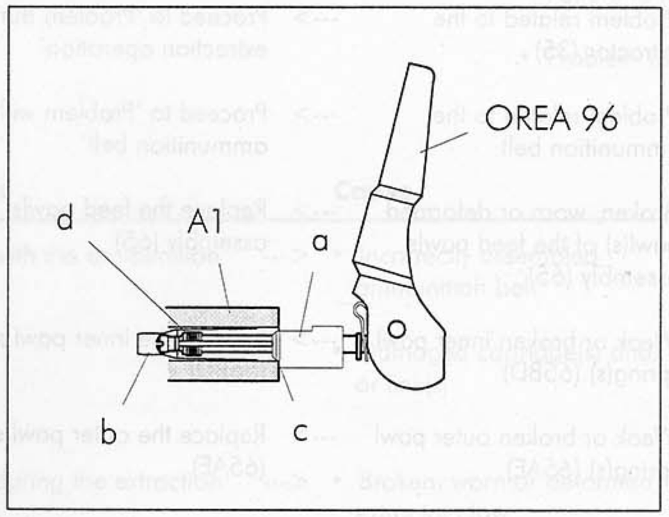

Fig. 11.a - Using the OREA 96 to remove the remaining part of a ruptured cartridge case

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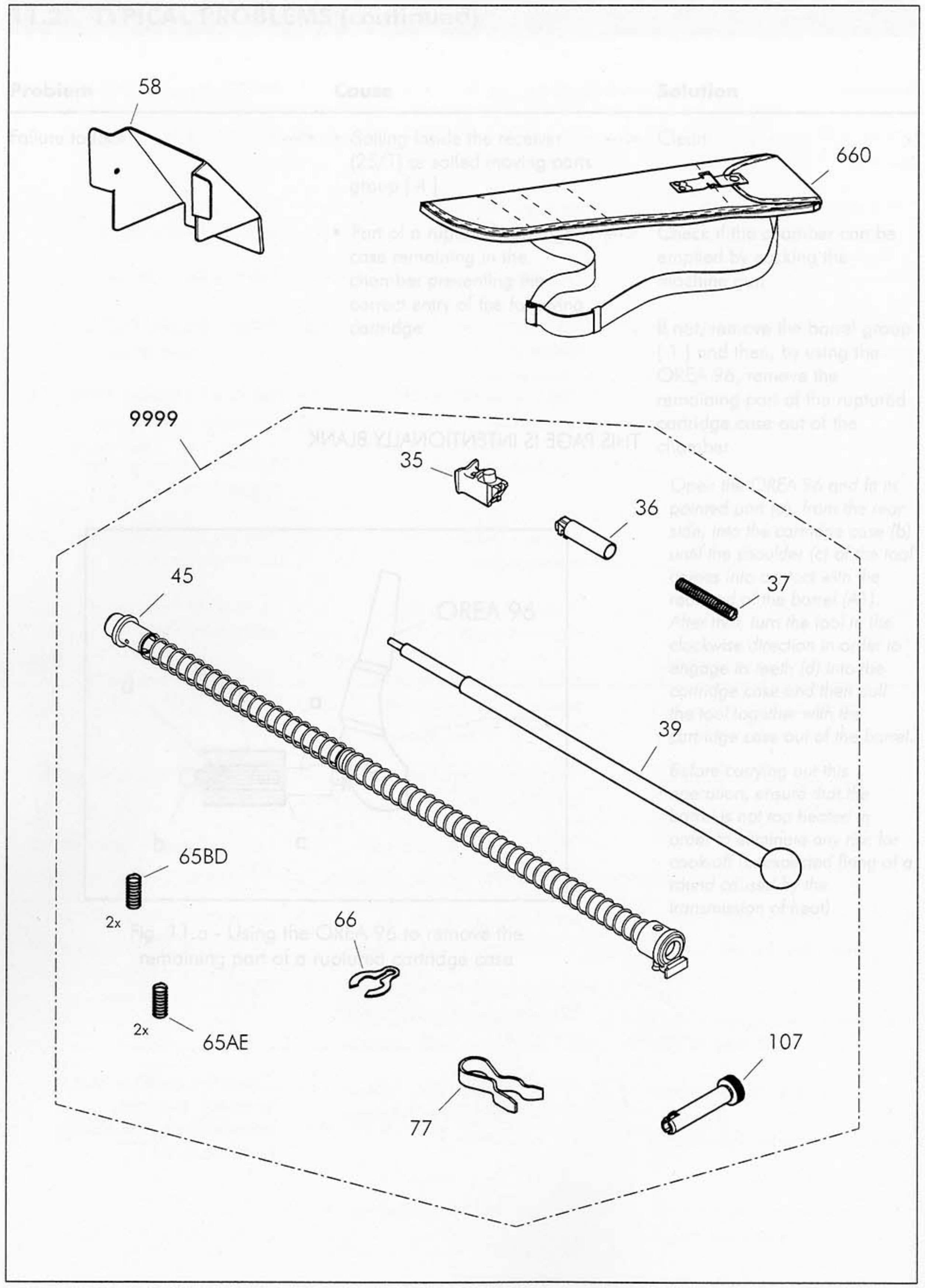

Fig. 12.a - Accessories of the coaxial MAG™L7A2(310)/(360) machine gun

CHAPTER 12 : ACCESSORIES

12.1. LIST OF ACCESSORIES (Fig. 12.a)

CAT n°	Description	Qty per unit
35	Extractor	1
36	Plunger, extractor	1
37	Spring, extractor assembly	1
39	Pin, firing	1
45	Return spring assembly	1
58	Deflector	1
65AE	Spring, compression	2
65BD	Spring, compression	2
66	Circlip, feed pawl	1
77	Clip, securing, feed channel	1
107	Pin, trigger mechanism	1
660/1	Barrel cover, web (olive-green)	1
660/2	Barrel cover, web (sand-yellow)	1
9999	Outfit, first repair	1

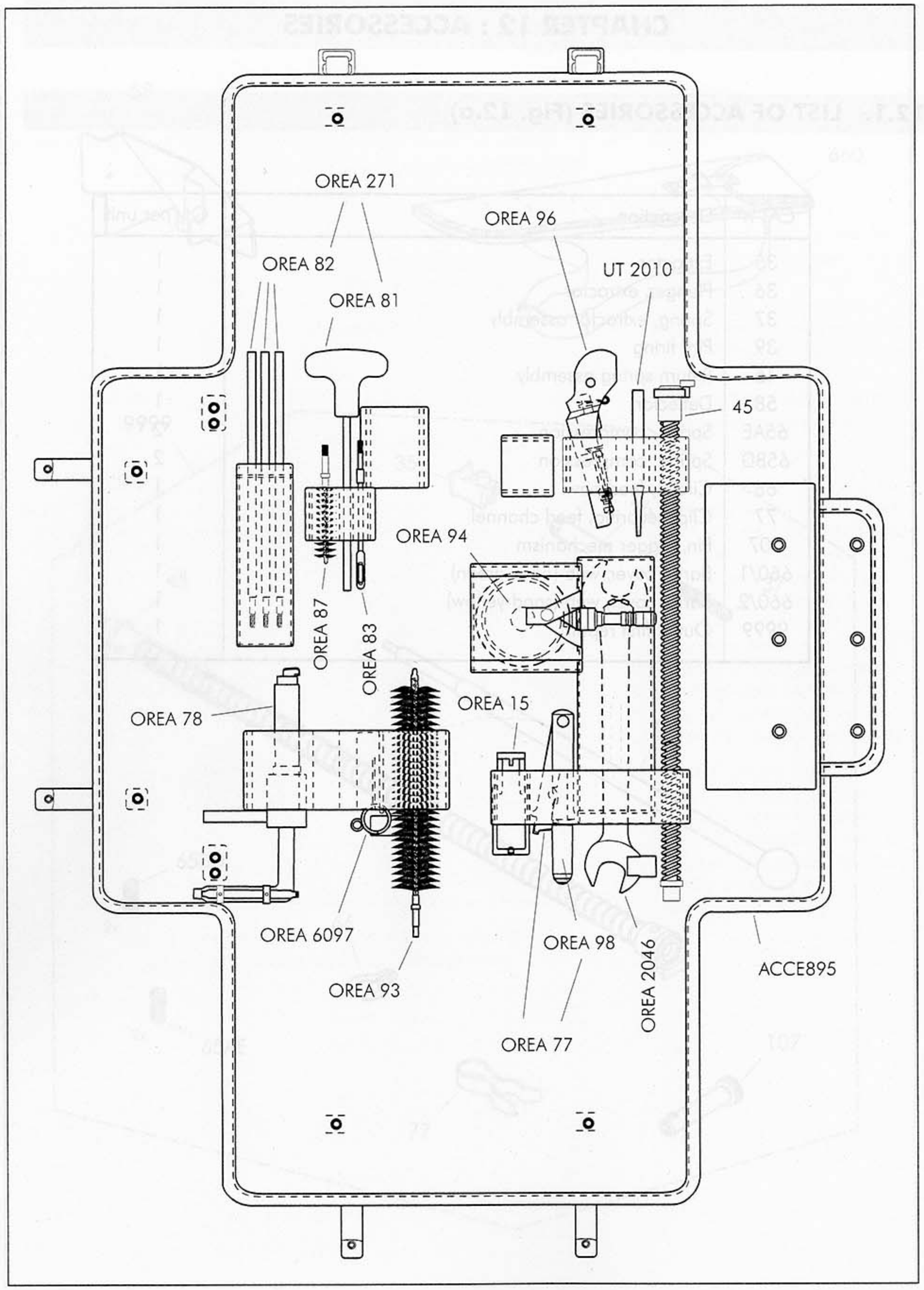

Fig. 13.a.1 - Tool kit for the coaxial MAG™L7A2(310)/(360) machine gun (511)

CHAPTER 13 : TOOLS AND GAUGES

13.1. TOOLS

13.1.1. Tool kit for the coaxial MAG™L7A2(310)/(360) machine gun (511) (Fig. 13.a.1)

CAT n°	Description
45	Return spring assembly
511	Tool kit (olive-green)
511/1	Tool kit (sand-yellow)
ACCE895	Roll, tool (olive-green)
ACCE895/1	Roll, tool (sand-yellow)
OREA 15	Tool, removing, ejector
OREA 77	Combination scraper, regulator
OREA 78	Tool and combination scraper
OREA 81	Cleaning handle, rotating
OREA 82	Cleaning rod section
OREA 83	Swab, barrel (section)
OREA 87	Cleaning brush complete for barrel
OREA 93	Cleaning brush complete for gas cylinder
OREA 94	Complete oil can with small chain
OREA 96	Extractor ruptured cases
OREA 98	Sheath, scraper
OREA 271	Cleaning handle, complete
OREA 2046	Sledge-wrench, combination
OREA 6097	Set of cleaning pins 1+14
UT 2010	Drift punch, dia. 2.9 mm, lg 40

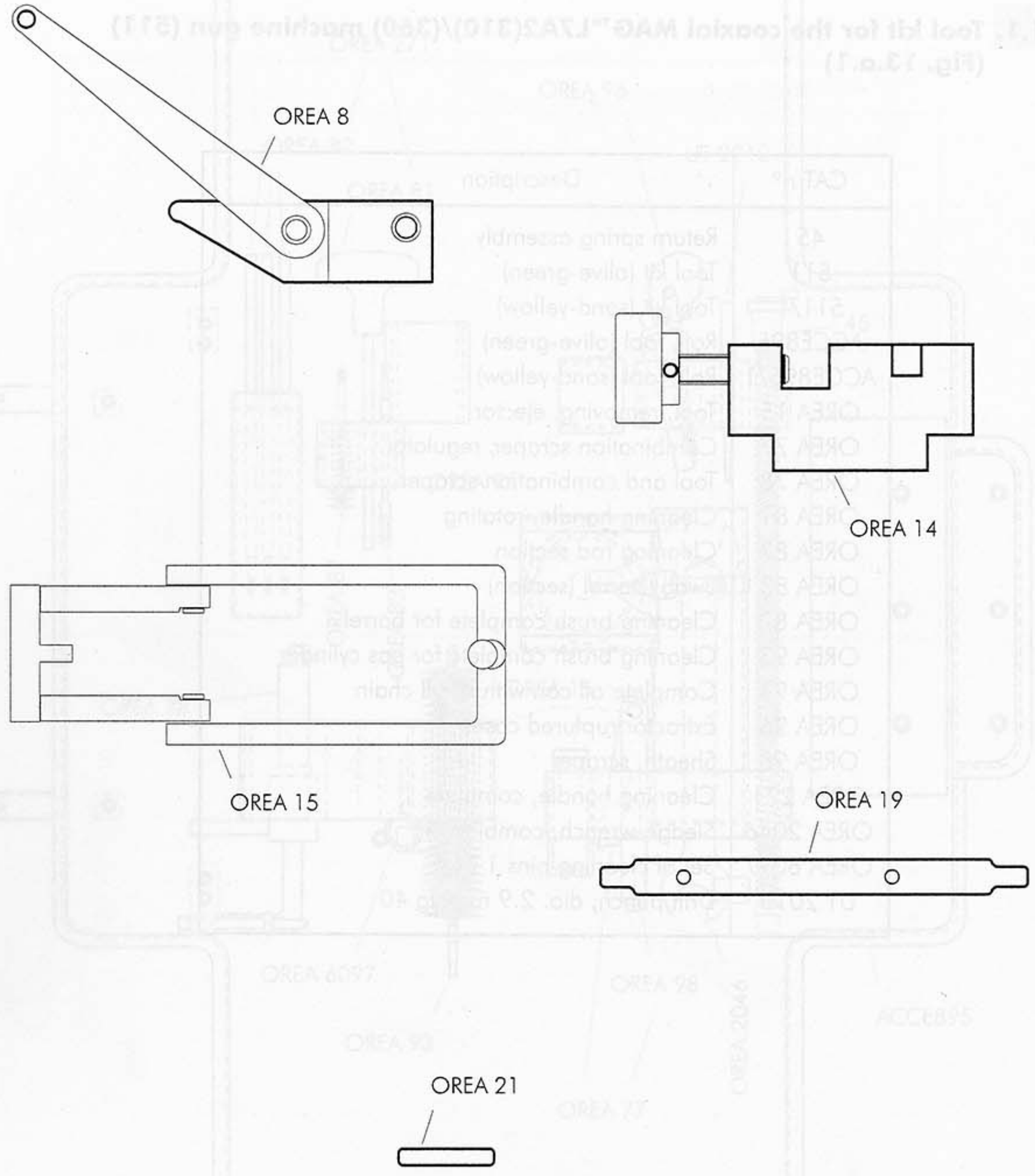

Fig. 13.a.2 - Separate OREA for the coaxial MAG™L7A2(310)/(360) machine gun

13.1. TOOLS (continued)

13.1.2. List of separate OREA (Fig. 13.a.2)

CAT n°	Description
OREA 8	Stripping tool for cover pawls
OREA 14	Fixture, repair, locking catch
OREA 15	Tool, removing, ejector
OREA 19	Tool, removing, extractor
OREA 21	Crimping drift, dia. 2.75, lg 16

13.1.3. List of UT (not illustrated)

CAT n°	Description
UT 1107	Open-end wrench 6 x 7 mm
UT 1119	Open-end wrench 12 x 14 mm
UT 1810	Flat-nose pliers
UT 1903	Screwdriver 3 x 75
UT 1913	Screwdriver 5.5 x 150
UT 2005	Drift punch, dia. 1.4 mm, lg 15
UT 2006	Drift punch, dia. 2.4 mm, lg 21
UT 2008	Drift punch, dia. 1.9 mm
UT 2010	Drift punch, dia. 2.9 mm, lg 40
UT 2012	Drift punch, dia. 3.4 mm, lg 27
UT 2013	Drift punch, dia. 3.9 mm, lg 30
UT 2030	Centre punch dia. 6 mm
UT 2411	Twist drill dia. 2 mm
UT 2908	Offset ring wrench 12-13
UT 2912	Offset combination wrench 14 x 15 mm

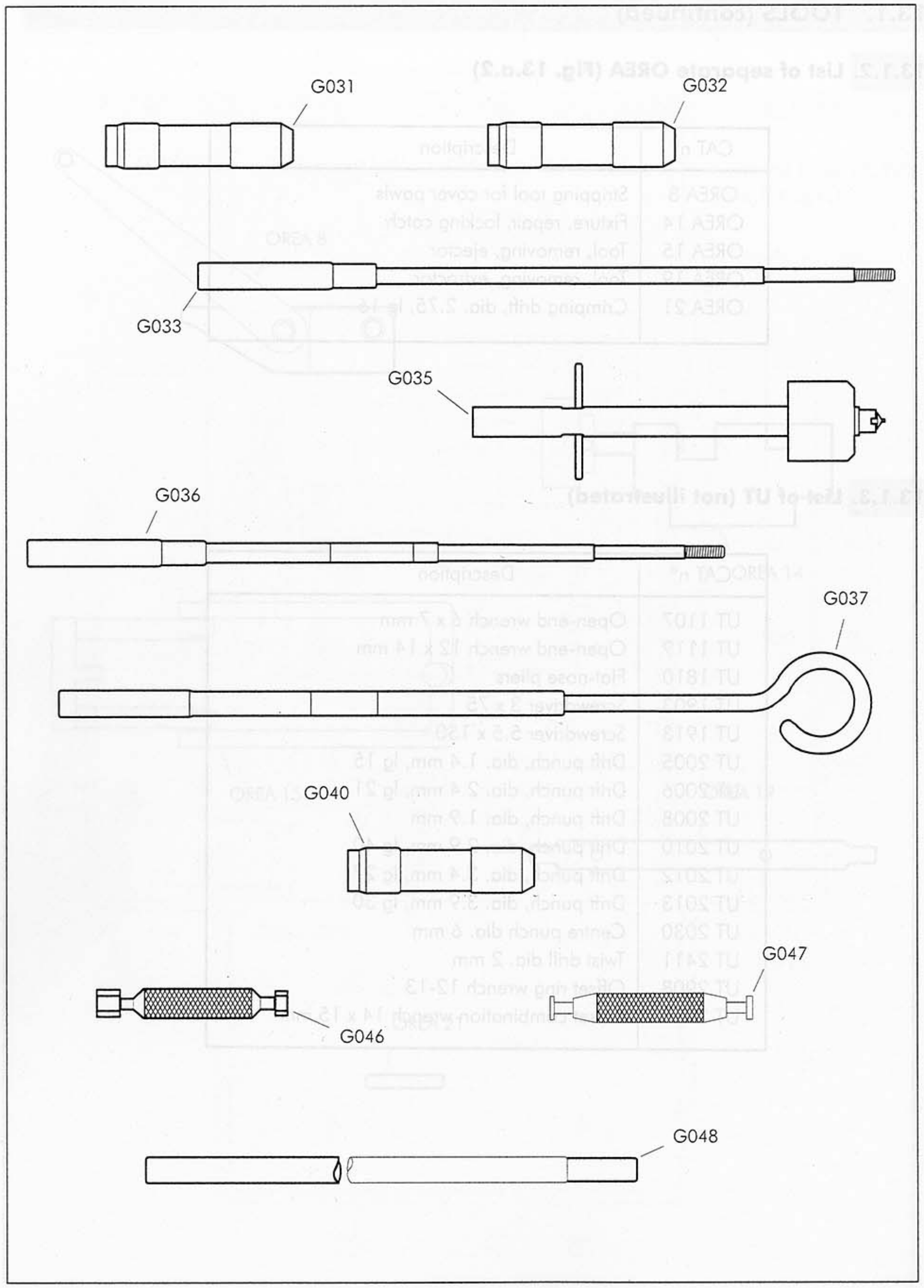

Fig. 13.b - Gauges for the coaxial MAG™ L7A2(310)/(360) machine gun

13.2. GAUGES (Fig. 13.b)

CAT n°	Description
G031	Service, warning
G032	Service, reject
G033	Bore, minimum
G035	Firing pin protrusion
G036	Bore service, warning and reject
G037	Bore service, warning and reject
G040	Workshop, minimum
G046	Extractor engagement
G047	Extractor clearance
G048	Barrel bore straightness

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CHAPTER 14 : NOTES